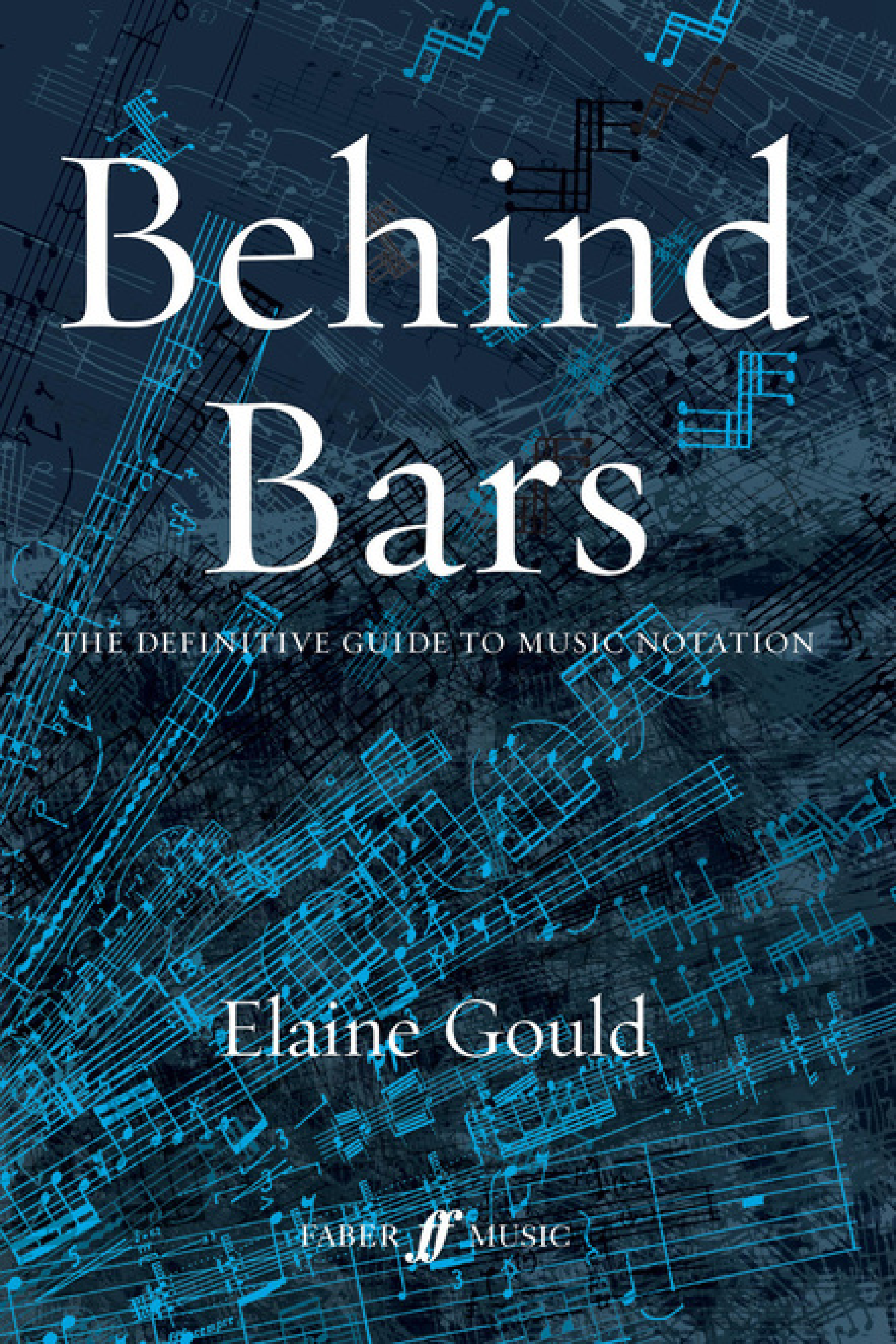

Behind Bars

THE DEFINITIVE GUIDE TO MUSIC NOTATION

Elaine Gould

FABER ff MUSIC

BEHIND BARS

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6 8 10 9 7 5

To my mother and brother
and to my many composer friends
for their boundless enthusiasm and encouragement

Elaine Gould, in this wonderful monster volume, has written the equivalent of the Grove Dictionary for Notation. It is an extraordinary achievement, and if used by the next generation of composers and copyists will be a blessing for hard-working and long-suffering performers everywhere! Every chapter presents solutions and rules that will make our life easier, save rehearsal time and frustration, and will ultimately lead to better performances. What is important for a musician is to be able to spend rehearsal time on the music itself, without the hindrance of trying to decipher it. The clarity Elaine asks for is not a matter of dry rules or customs: it is part of the living texture of the music itself. I not only welcome her book unreservedly, but I would also pray that it becomes a kind of Holy Writ for notation in this coming century. Certainly nobody could have done it better, and it will be a reference for musicians for decades to come.

Sir Simon Rattle

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Introduction

In an age where computers can do it all for us, what need is there for expertise in, or even a working knowledge of, the principles of notation?

Many will believe that given a certain level of expertise, computer processing enables the user to produce music of the highest quality. Software will make layout and spacing decisions, and produce a beautifully sharp and precise page of music. The innovation of computer technology is indeed essential since most performers today prefer or expect computer-generated material even if some professionals still say that well-spaced hand copying, or a composer's manuscript, tell us more about the music than the impersonality of a computer-set page ever can.

But computer-generated music must satisfy best practices if it is to fulfil its function. I hope that a thorough understanding of the principles set out in this book will complement – indeed complete – the armoury of skills, shortcuts and techniques that the modern musician sitting at a computer has to hand. Computer software can take us so far; only the dexterity and subtlety of the human mind can make the ultimate informed choices notation frequently demands. The information presented in this book should therefore be relevant regardless of whether the user is sitting at a computer or undertaking the painstaking job of hand copying a manuscript. A computer programme will apply notation principles, but the operator must decide if these are the most apt solutions, and a trained eye is required to refine the settings and evaluate if the contents of the stave and the spacing on the page are really the most appropriate.

To take one example, there is a commonly held assumption that music software will extract satisfactory parts at the push of a button. Near-instant part extraction is of course an extraordinary achievement compared to the laborious nature of hand copying. Adequate parts can, however, only 'appear' if the raw material has been entered syntactically, if the user has a trained eye for spacing, and when care has been taken to account for performance conditions and skill levels.

The poor state of instrumental parts is frequently a source of anxiety for composers and performers alike since bad layout – poor spacing and ill-judged page-turns, for instance – can hinder a good performance. When a performer stumbles in rehearsal this is frequently because there is something wrong with the layout or the notation. Spending rehearsal time ironing out needless reading difficulties is unfair on the musicians, who will be hoping to invest their time and energy in the music. In my experience, professionals are frequently too tolerant of poor presentation – they should be free to devote their minds to the performance, not to deciphering the part. The following letter from Mahler to his wife, Alma, (referring to the part copying of the Eighth Symphony) highlights the dangers of hasty decisions:

> Munich [17 June 1910]
>
> My Almschl,
>
> I'm writing this to you just as a sign of life. What this copyist has done to me (the one who made such an affected, unpleasant impression on us at the time) is simply too dreadful. In every part, wherever an instrument has a longer passage of rests, instead of writing them out in full, the lazy pig has merely written *tacet* (which is normally done only when an instrument is silent for a whole movement). – So now, not only are the players unable to find their bearings, but when *I*, poor devil, want to change the orchestration, instead of simply writing in the necessary bars at the appropriate place, I also have to write out the entire *tacet* passage, and sometimes have to delete several lines to make room for it. This is wasting *hours and hours* of my time . . .
>
> Your Gustav*

Although the wonders of computer technology can make it no more time-consuming to include all *tacet* bars than to omit them, it is essential to be able to judge the level of information the performer requires, so that we don't make similar blunders.

As musicians, we tend not to spend much time analysing why this or that piece of music looks good or bad, but there's no doubting that we can feel when something is not quite right, even if we don't know why. Musicians deserve the very best that the language of notation can provide, and the most elegant layout that can be achieved; in this way they will be free to give their all in performance. Through a mutual understanding of the rules and conventions of notation, the composer can 'speak' effectively to the performer, who then has the best chance of achieving a faithful interpretation of the composer's intentions.

In *Behind Bars* it is my aim to provide the tools for this purpose by reminding the reader of the practical requirements of performance as conveyed through accurate notation. It goes without saying that many of the views and practices expressed in *Behind Bars* are subjective. My own views regarding best practice are based on three decades of working with music notation, composers and performers, and I have attempted to present a clear, user-friendly guide, encompassing a wide variety of styles and taking account of different viewpoints. Any errors are my own.

---

* From *Gustav Mahler: Letters to his Wife*, translation © 2004 Antony Beaumont. Reprinted by permission of Faber and Faber Ltd

It is my hope that the principles set out in *Behind Bars* will serve music into the twenty-first century and that musicians can be safe in the knowledge that they will understand each other for many years to come.

Historical context

The early twenty-first century is an appropriate time to re-establish principles of good practice that have governed notation over the last 150 or so years. New compositional techniques of the mid-twentieth century stimulated notational experiment and innovation, and that left a diverse legacy. Some innovations were indispensable to a specific compositional process but could not be readily transferred to another style. Some, however, have proved adaptable to a range of musical styles and include innovations that may be useful additions to the composer's vocabulary. (These techniques are discussed in Chapter 20.) The intention of *Behind Bars* is to encourage the use of established conventions where appropriate since what is familiar is of most help to the musician. The familiar can be read and understood quickly. There are often already so many different ways of notating the same thing that the invention of novel notation to give a score a particular uniqueness is unhelpful and potentially alienating. Unfamiliar notation takes much longer to assimilate; furthermore, the more complicated the notation, the greater the possibility is that it will create a barrier to the reader.

The notation innovations of the mid-twentieth century were duplicated in different parts of the world, with individual composers using or even inventing different notation for new methods of composing or new performance demands. Erhard Karkoschka's *Notation in New Music* (English edition, Universal Edition (London), 1972) catalogued many of these strands, which brought to light the lack of a common language. Kurt Stone's *Music Notation in the Twentieth Century: A Practical Guidebook* (W. W. Norton, 1980) sought to standardize the new notation symbols and procedures then in currency. Some of Stone's proposals have been adopted widely while others have not been found so useful. *Behind Bars* revisits notation in the light of scores written in the intervening years.

I have been highly selective in the choice of extended instrumental and vocal techniques included in this book, but it is intended that this should give the reader the facility to create notation for other techniques not in common use. Kurt Stone's book is still a valuable source for further examples of extended instrumental and vocal techniques, as well as for discussion of issues and trends in mid–late twentieth-century composition.

In the field of non-mensural notation, proportional spacing has proved a versatile tool: Chapter 20 discusses the most practical options. Inclusion of graphic notation is restricted to that which can be incorporated within a conventional framework and read on the horizontal time-space axis. Readers wishing to explore visual pattern or illustration *per se* are guided towards Karkoschka's book.

Skills of traditional engraving used to be passed down in publishing houses. In a post-engraving era, I have formulated conventions from analysis of historical engraving practices, consulting a cross-section of scores engraved over the last hundred years, as well as scores by known experienced engravers. In present-day classical publishing, the editions of Henle and Bärenreiter are notable models of good practice.

For the first time in its history, music notation is no longer only a prescriptive vehicle (a set of instructions for the performer) but has gained a descriptive function: to document sounds in the fields of electronic music and ethnomusicology. It is to be hoped that the section on electroacoustic music will provide useful tools and options in this rapidly changing area.

Behind Bars is in no way a history of music notation, but is a practical guide to present-day users who need to communicate their music accurately and effectively.

Using *Behind Bars*

Within the covers of this book, a clear, detailed hierarchy of headings should enable the reader to navigate the book easily and find information quickly. Related subjects are grouped together where practical; subjects that are treated elsewhere in different contexts are cross-referenced. In general, a topic is structured: definition – design – placing – use. Where practical, topics are handled as logical progressions from the elementary to the complex, and definitions are given where terminology is uncommon or potentially confusing. Foreign-language technical terms are used where they are in common usage in the English-speaking world, and such terms are presented in the text in italic – even though they may appear in roman type in a musical context. A basic knowledge of music theory is assumed.

Every facet of a piece of music, from general layout to the placing of symbols, is very much dependent on individual context. I have illustrated as many contexts as possible within the music examples, and introduce comparative examples to train the eye to distinguish good practice from bad. Where relevant I have chosen extracts from a variety of sources. There is no implied comment on musical merit in the choice of examples, nor in terms of the inclusion or exclusion of particular composers' works. References to scores in the text are likewise chosen simply for their notational attributes.

The mainstay of *Behind Bars* is to examine the complex set of rules based on unique or shared conditions. Effective communication results from establishing a convention and adopting a consistent approach. Where appropriate I have presented the rationale for certain conventions and rules, to make such conventions more memorable. Where new technical or compositional demands require new notation, I have proposed conventions that are simple, clear and, where possible, in keeping with traditional practice. Where conventions are not established, I have made my own recommendations. Not everyone will be in agreement with my conclusions, but they are based on my many years of working with composers and performers. My aim is to raise awareness of the many subtle and complex issues to be considered, and provide the tools to address them.

Elaine Gould
January 2011

Acknowledgements

Many fellow musicians have (willingly or inadvertently) helped me to form the opinions expressed in this book, and have given generously of their time and expertise. It is impossible to name them all here, but the following, many of whom are leading exponents of contemporary music, deserve special mention since their opinions have helped to shape the content of the subject matter relating to their instruments:

woodwind players: Philippa Davies, *flute*; Melinda Maxwell, *oboe*; Ian Mitchell, *clarinet*; John Orford, *bassoon*
brass players: Bryan Allen, *trumpet*; Stephen Roberts and Michael Thompson, *horn*; Simon Wills, *trombone*
percussionists: Richard Benjafield and David Hockings
pianists: Ian Brown, Stephen Coombs, Ian Pace and Clive Williamson
organists: Christopher Bowers-Broadbent, Colm Carey and David Goode
harpists: Christina Rhys, Helen Tunstall and Hugh Webb
guitarists: Tina Jones and Alan Thomas
string players: Ivor McGregor, *violin*; Bridget Carey, *viola*; Judith Mitchell, *cello*; the late Corin Long, *double bass*
singers: Lesley-Jane Rogers and Mary Weigold

Thanks are due to the following musicians for their particular contributions and guidance: Keith Allen and Adrian Connell, wind band; Paul Hindmarsh and Phillip Littlemore, wind band and brass band; David Roberts, word division principles; Patrick Russill, Latin word division; Irvine Arditti, preparing chamber music parts; and Julian Anderson, for allowing me to plunder his phenomenal knowledge of the repertoire and our stimulating discussions of non-standard notation. The invaluable expertise of Michael Clarke and Paul Archbold in the field of electroacoustic music enabled me to compile a chapter on this complex area. To engravers Mike Mack Smith and Jack Thompson, and especially to Jeanne Roberts, who read complete proofs and offered many helpful comments, my heartfelt thanks.

There are some key figures without whom this book would not have materialized, and I owe them an immense debt of gratitude: to John Carewe for his sound and practical advice over the years regarding the requirements of a conductor; to Colin Matthews and Michael Durnin, who read the first complete draft; to Richard Emsley for his painstaking work on the music examples; and especially to my fellow editor Paul Tyas, for his thoughtful

advice, unique expertise in producing the music examples, invaluable comments on final proofs, and not least for his tolerance of my exacting standards. On a personal note, I am grateful to my brother, Allan, for typing numerous drafts, and to my mother for her support and understanding.

Beyond these, I must express thanks to my first editor, Wendy Thompson, for commissioning the book and having faith that I could write it; to Richard King for adding focus to a generation of rewrites and proposing a restructure; to Jill Burrows, my designer and indexer, whose expertise and skill have made the content of the book a joy to behold; and to my final editor, Kathryn Knight, who uncomplainingly inherited this enormous project: for her enthusiasm, diligence, patience and huge reserves of determination to see the book through innumerable proof stages. Many other colleagues at Faber Music have provided help, encouragement and support, particularly Sally Cavender, and, of course, the Faber Music house composers.

I may never have aspired to embark on the writing of this book without the inspiration of two teachers who instilled in me high standards of excellence and whose consummate professionalism and craftsmanship have been a source of inspiration: calligrapher Joan Pilsbury and composer John Casken.

Finally, I am immeasurably grateful for the patience, tolerance and, above all, support of long-suffering friends, family and colleagues over twenty years. A labour of love on this epic scale would never have been completed without them.

E.G.

I

GENERAL CONVENTIONS

1

Ground Rules

The stave 5

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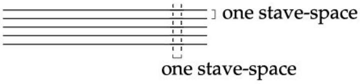
The stave

The five-line stave

The size of every notational symbol is measured in proportion to the stave size. A stave-space is the distance between two stave-lines and is used as a measurement for notational symbols and spacing in this book.



(For *Stave sizes*, see p. 482; for choosing an appropriate stave size, see *Performance conditions*, p. 557.)

The single-line stave

USES

- to notate instruments of indefinite pitch
- to notate sounds of indefinite pitch (e.g. percussive sounds) produced on pitched instruments
- to notate vocal sounds of non-specific pitch
- to notate a cue line of rhythm
- as an option to show approximate pitch

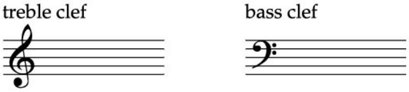
(See also *Spoken text in rhythm*, p. 457; *Non-text sounds: Other effects*, p. 460; *Rhythmic cue line*, p. 576; and *Options to show approximate pitch: On a line or grid*, p. 641.)

Clefs

Clef position

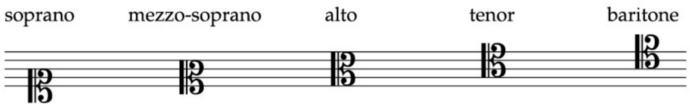
There are four clefs in common use. It is important to place each on the stave so that it centres precisely on the relevant stave-line.

The treble (or G) clef winds around the G line; the bass (or F) clef winds around the F line, and its dots fall each side of the F line:

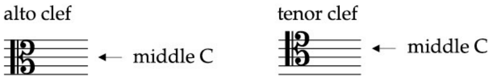


C CLEFS

These centre on whichever line is to be designated as middle C. The five clefs are:


soprano
mezzo-soprano
alto
tenor
baritone

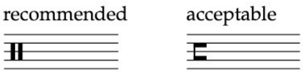
The C clefs in common use are the alto and tenor clefs. The alto clef centres on the middle stave-line. It covers the height of the stave. The tenor clef centres on the second stave-line down. It is the same height as the alto clef (the height of the stave), but placed one stave-line higher:


alto clef
middle C
tenor clef
middle C

The other C clefs are used to replicate the original clefs of early music vocal scores.

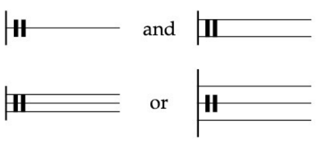
PERCUSSION CLEFS

The following clefs are placed in the middle two stave-spaces to indicate that the stave contains notes of indefinite pitch:


recommended
acceptable

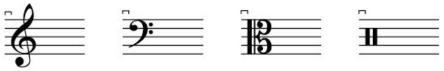
(See also *Clefs on the five-line stave*, p. 279.)

The clef is optional for a stave of fewer than five lines, since such staves are assumed not to signify pitches anyway. If used, place the clef as follows:



INDENTATION

A clef is indented into the stave by one stave-space (⌐) or a little less:



Clefs to use

Except for percussion, each stave must begin with a clef. Never omit the clef; only in hand-copied theatre and entertainment music has it ever been an accepted convention to use a clef on the first line and no other.

USING ALTO AND TENOR CLEFS

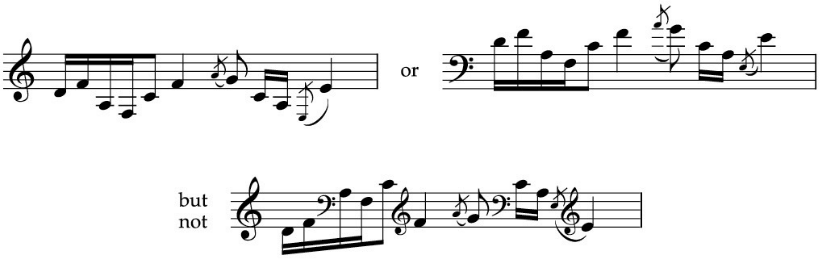
Among common orchestral instruments, only the viola uses the alto clef. The alto clef should be used for alto trombone parts (see *Trombone and tuba*, p. 262).

Bassoon, trombone, cello, and occasionally double bass, use the tenor clef. Some nineteenth-century editions place tenor-voice parts in the tenor rather than the treble clef.

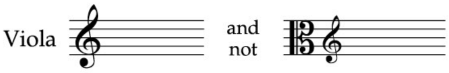
Changing clef

A change of clef placed after the beginning of the system is two-thirds of the size of the clef at the beginning of the stave (see following examples).

For performance material, stay in one clef for as long as is practicable, using up to at least three ledger lines rather than changing clef frequently. This shows the contour of the pitches, which a change of clef would obscure:

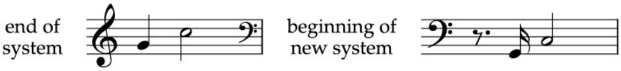


The practice of retaining the most commonly used clef at the beginning of the stave while inserting a new clef after it is obsolete. This includes the very start of a piece:



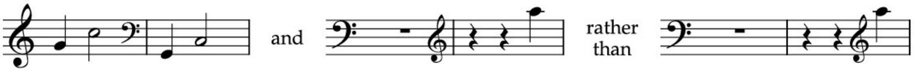
AT THE BEGINNING OF THE SYSTEM

Give warning of the clef change by placing the new clef at the end of the previous system before the barline:



AT THE BEGINNING OF A BAR

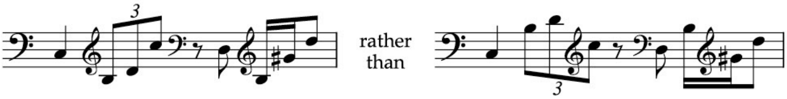
The clef always goes before the barline, whether or not rests precede the entry:



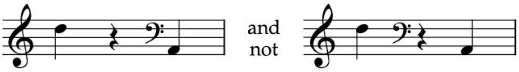
The only time that clefs appear directly after a barline are clefs for cues (see *Positioning clef changes*, p. 573) and clef changes after repeat sections (see *Changes after a repeat*, p. 235).

MID-BAR

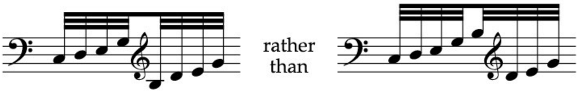
Place the new clef between beats, rather than in the middle of a beat. This is least disruptive to the spacing of the bar:



Between beats, change the clef after rests:



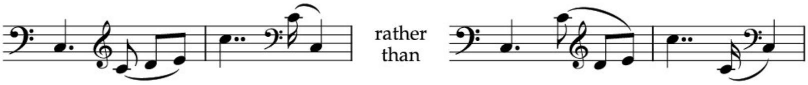
Should a new clef be unavoidable in the middle of a beat, position it between half-beats or another subdivision:



(For spacing with clef changes, see *Additional clefs and accidentals*, p. 43.)

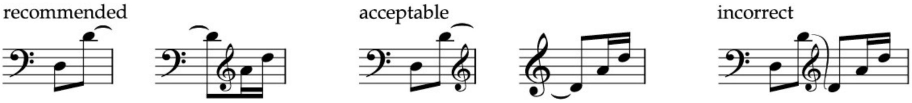
BETWEEN PHRASES

In a passage of continuous playing, place a new clef between phrases, wherever this occurs in the bar. This placing overrules the above considerations. It enables the reader to see the pitch contour of the phrase intact. The clef separates two phrases rather than two bars or two beats:



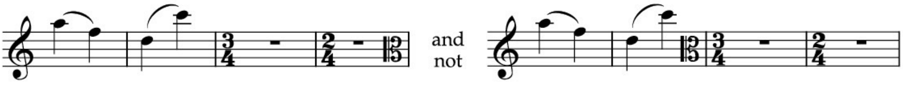
WITH TIED NOTES

Avoid changing a clef during a tied note, as the tie will look cumbersome. If this cannot be avoided, the clef is best changed at a system break:

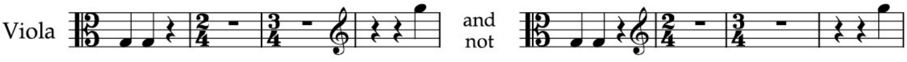


AFTER PERIODS OF RESTS

Where an instrument rests for more than a system, it is usual to return it to its commonest clef (provided this is suitable for the following entry). For example, a viola previously playing in the treble clef changes back to the alto clef. (This helps when reading a full score: the staves of some instruments can be immediately identified by their clefs.) Place the clef change at the end of the system after the player has finished: this is the least disruptive position as regards spacing. It is better than an immediate clef change before rests, which draws unwanted attention to the new clef at an arbitrary point:



Where there needs to be a change from the more standard clef, retain this clef until the barline before the next entry. This placing alerts the performer to the change at the relevant point (i.e. at the entry), and not further back before a group of rests, where it may be overlooked:



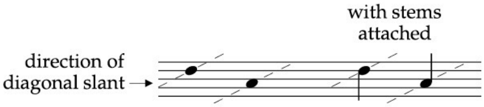
(See also *Exchanging ordinary and octave-transposing clefs*, p. 507.)

Noteheads

Shape and size

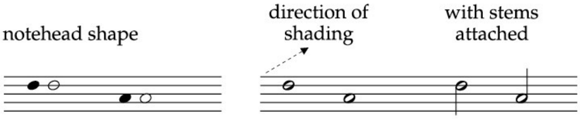
BLACK NOTEHEADS

These are oval-shaped and placed on the stave with a diagonal slant away from the stem:

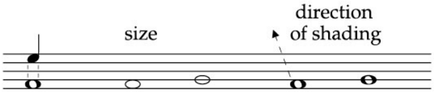


WHITE NOTEHEADS

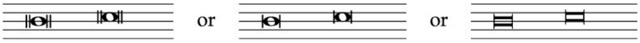
The minim: the notehead is oval-shaped with diagonal shading. It is usually slightly larger than the black notehead:



The semibreve: the oval notehead has greater width (in proportion 2½ semibreves to 3 black noteheads) and does not slant diagonally. Its shading slants slightly but in the reverse direction from the minim – a semibreve is not a stemless minim. White notes tend to be read by their shape, rather than by the presence (or not) of a stem, whereas with black notes the eye looks for a tail or beam – the correct shape for the notehead is therefore important:

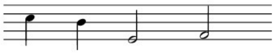


The breve: this can be notated in one of three ways:



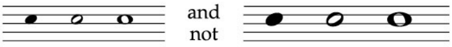
Placing

The height of a stave-space determines the size of all noteheads, which is crucial to ease of reading. Noteheads too small in proportion to the stave make the music uncomfortable to read:



NOTES IN A SPACE

The notehead fills the space, touching the stave-line on each side of it, but without extending beyond either line:



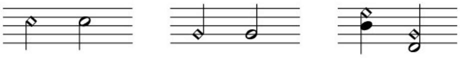
NOTES ON A LINE

The notehead is precisely centred on the stave-line. The unshaded centre of a white note must be visible when the stave-line runs through the notehead.

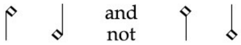
If the stave-lines are too thick and the noteheads too small, the centre of white notes may fill in with reproduction.

Diamond-shaped noteheads

The diamond shape has concave sides and is shaded on the diagonals as in the example below. When the notehead is in a space the top and bottom corners slightly extend beyond the stave-lines on either side. This is to give the notehead sufficient size to distinguish it from a minim. Diamond noteheads look small compared with the white oval:



A stem joins the diamond at the side of the notehead, and not at the central point (although the latter are used to replicate the notation of early music editions):



USES

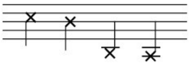
- as harmonics in instrumental writing (except piano)
- as silently depressed keys in piano music
- to differentiate notes of unconventional technique in wind music
- to indicate singing through a wind instrument
- to indicate multiphonics
- as unvoiced sounds in vocal writing
- as an option for falsetto

(See also *Vocalizing while playing*, p. 250; also, *Voiced and unvoiced sounds*, p. 458.)

Harmonic noteheads for bowed string instruments and woodwind remain white, regardless of duration. Harmonic noteheads for guitar are white or black according to duration.

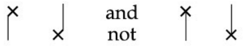
Crossed noteheads

The cross comprises two unshaded diagonal lines. It fills a stave-space:



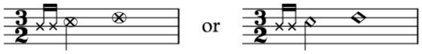
The double-sharp sign 𝄪 is sometimes used for crossed noteheads, but is best reserved for use as an accidental symbol.

The stem joins the cross at the edge of the symbol, and not at its centre:



MINIMS AND SEMIBREVES

The unshaded area inside a white notehead is too small to add a cross without obscuring the white space. Instead, the cross is surrounded by a thin unshaded circle (the same shape for both minim and semibreve durations). In simple percussion writing, the crossed notehead is sometimes replaced with a diamond-shaped notehead, to make the durations slightly easier to read:



However, it is not recommended that crossed and diamond notes are mixed in this way.

(See also *Percussion: Crossed noteheads*, p. 282.)

USES

- in both instrumental and vocal writing, to notate percussive sounds and sounds of indefinite pitch on a five-line stave
- in percussion writing, to distinguish certain instruments or their beating spots, and to notate finger damping
- to distinguish spoken text
- in vocal music, to indicate styles between speech and singing
- as an option to show approximate pitch

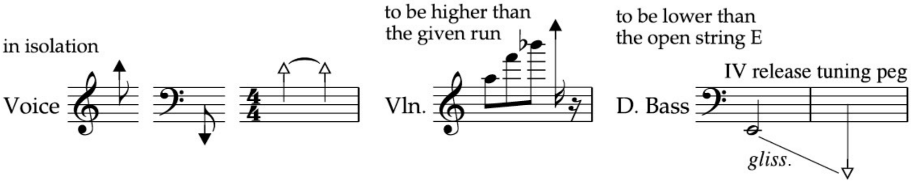
(See also *Speaking through an instrument*, p. 250; *Spoken text in rhythm*, p. 457; *Styles between speech and singing*, p. 458; *Symbols to replace repeated instructions*, p. 494; and *Options to show approximate pitch: Crossed noteheads*, p. 640.)

Triangular noteheads

The triangular notehead denotes the highest/lowest possible pitch, where such a pitch cannot be specified.

The notehead may be black or white according to duration. It is a little larger than a minim notehead. The stem is attached to the centre of the base of the triangle. For a semibreve duration, two tied minims are clearer than a stemless notehead (see following example).

Place the notehead outside the stave, the exact distance from the stave depending on context:


in isolation
Voice
to be higher than the given run
Vln.
to be lower than the open string E
D. Bass
IV release tuning peg
gliss.

Do not use the triangular notehead for a pitch that can be defined. For example, the bottom note of a stringed instrument should be notated at its proper pitch, and a triangular notehead used only if the string is to be detuned to an unspecified pitch. If this is the case, an instruction must say so, as in the double bass example above.

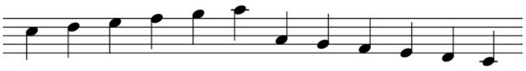
(See also *Glissandos: To and from unspecified pitches*, p. 142.)

Stems

Stems should be thinner than the stave-line, but not so thin as to reproduce too faintly.

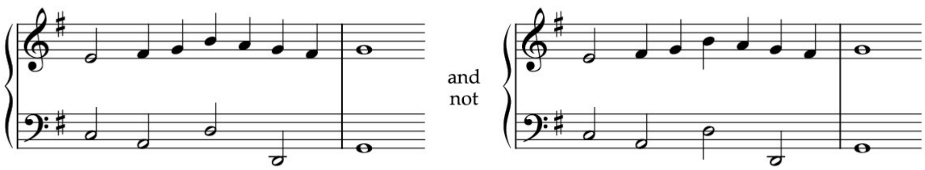
Stem direction

Notes above the centre stave-line take down-stems, notes below the centre stave-line take up-stems:

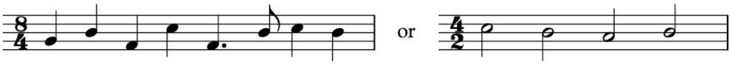


NOTES ON THE CENTRE STAVE-LINE

When notes are on the centre stave-line, the stems may go in either direction. The direction is determined by context. Continue the stem direction of surrounding stems that are in one direction only:



When the stem direction varies within a bar, maintain the stem direction of the notes that are part of the same beat or half-bar:



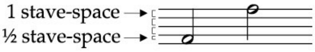
When there is no clear-cut case for either direction, the convention is to use a down-stem. Some editions use down-stems exclusively.

Some editions of vocal music use up-stems only, to allow the text to be placed close to the stave.

(See also *Stem direction on beamed groups*, p. 24; for single-stemmed chords, see *Stem direction*, p. 47; for *Double-stemmed writing*, see p. 52.)

Stem length

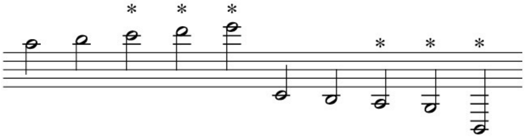
The standard length of a stem is one octave (i.e. 3½ stave-spaces) from the centre of the notehead:



(For grace notes, see *Design*, p. 125; for cue notation, see *Size and spacing*, p. 569.)

NOTES ON LEDGER LINES

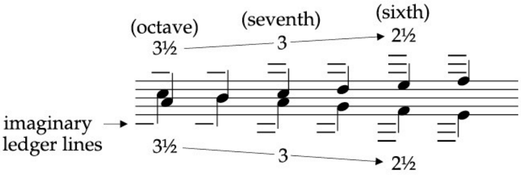
Stems for notes on more than one ledger line extend to the middle stave-line (marked * below):



DOUBLE-STEMMED WRITING

As stems fall further outside the stave, they are progressively shortened. The shortest stem length is a sixth (2½ stave-spaces): no stem should ever be shorter than this.

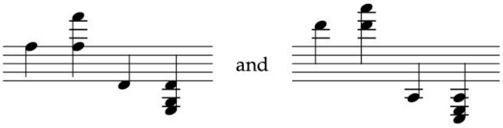
stem length measured by (interval) and in stave-spaces



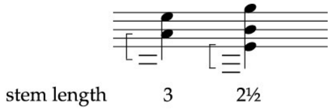
CHORDS

Stem length is measured from the note closest to the open end of the stem. This stem is the length it would be as a single note.

Stems within the stave are one octave long (3½ stave-spaces); stems for notes on ledger lines reach to the middle line:



Stems outside the stave are progressively shortened (as in *Double-stemmed writing*, opposite):



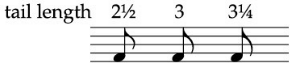
ADDING TAILS AND BEAMS

The standard stem length allows room for one or two tails or beams to be attached. In double-stemmed writing, the stem length of 2½ spaces accommodates only one tail or beam. For each additional tail or beam, the stem must be lengthened (see *Additional tails*, p. 16; also, *Additional beams*, p. 19).

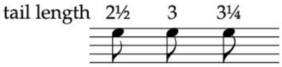
Tails

Quaver tails

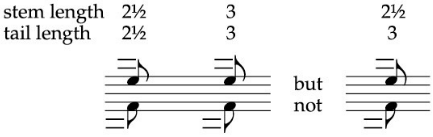
The engraved design of tail is 2½–3¼ stave-spaces long (3–3¼ is the norm). This ensures that the tail of an up-stemmed note finishes opposite or just above the notehead:



The tail of a down-stemmed note may curve as far as to touch the notehead:

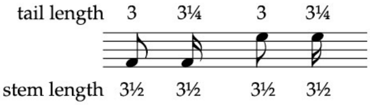


When a stem is shorter than 3 stave-spaces, the tail should avoid overshooting the notehead. A stem length of 2½ spaces can accommodate a tail of this length, but the stem should be lengthened for a longer tail:



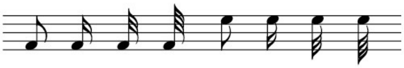
Semiquaver tails

The semiquaver tail fits inside the quaver tail. The tails are a little less than a stave-space apart. Usually the combined length of the semiquaver tails is ¼–½ stave-space longer than the quaver tail. Sometimes stems are slightly lengthened for this, although they most commonly remain the same length:



Additional tails

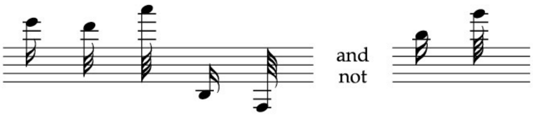
These are added further from the notehead than the quaver tail. Extend the length of the stem for these:



So that tails do not touch the noteheads of down-stemmed notes, some editions shorten the tails while others lengthen the stems.

Notes on ledger lines

The outer stave-line must be clearly visible; tails closer to noteheads will obscure ledger lines:

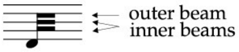


Beams

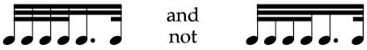
(For beaming notes into groups to reflect the time signature, see *Beaming according to the metre*, p. 153.)

Design

Beam thickness is ½ stave-space. The distance between beams is ¼ stave-space. Thus the correct placing of three beams is:

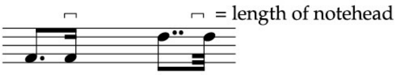


All stems should pass through all inner beams to the outer beam, not just the outside stems of the group, as in some (mostly French) editions:



FRACTIONAL BEAMS

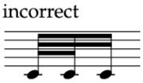
These inner beams are the length of a notehead:



(For *Fractional beams*, see p. 157.)

Beam placing within the stave

A horizontal beam should not be placed in the middle of a space. The closeness of beams and stave-lines is uncomfortable to read and there is a danger that the narrow white spaces will disappear at a small stave size and with poor reproduction, so that both beams and stave-lines are obscured:



A beam must be attached to the top or bottom of a stave-line or else be centred on the line. The only possible exception is the placing of four beams within the stave (see p. 18).

Angled beams should have all beams attached to a stave-line at both ends of the beamed groups (see *Angled beams within the stave*, p. 20).

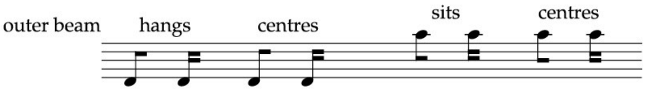
The following rules will avoid placing beams in the middle of a stave-space.

TWO BEAMS

Up-stems: the outer beam hangs from or centres on the stave-line.

Down-stems: the outer beam sits or centres on the stave-line.

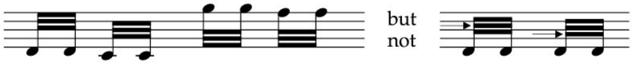
These positions are fixed so that when an inner beam (the semiquaver beam) is added, it does not end up in the middle of a space:



THREE BEAMS

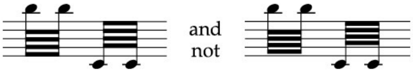
Up-stems: the outer beam hangs from the stave-line.
Down-stems: the outer beam sits on the stave-line.

Any other outer beam position results in a beam ending up in the middle of a space (marked →):



FOUR BEAMS

If possible, place the beams slightly further apart than normal, so that each is attached to a stave-line:



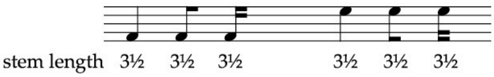
Where there is no the facility to alter the distance between beams, this will result in a beam in a stave-space. This compromise is acceptable as long as the reproduced image is sufficiently high quality that the spaces either side of the beam do not fill in.

Beam placing affecting stem length

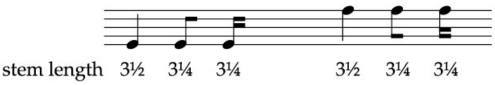
ONE AND TWO BEAMS

A stem may be slightly lengthened or shortened to allow for correct beam positioning within the stave (as described above). The stem length (including the width of the outer beam) should be as close to 3½ spaces (normal stem length) as possible.

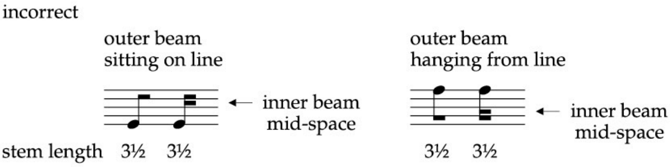
When notes are in a space, the stem length is 3½ spaces:



When notes are on a line, the stem is shortened to 3¼ spaces:

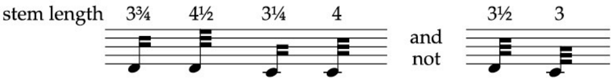

stem length
3½
3¼
3¼
3½
3¼
3¼

This prevents the inner beam from being incorrectly placed when it is added:


incorrect
outer beam
sitting on line
inner beam
mid-space
stem length
3½
3½
outer beam
hanging from line
inner beam
mid-space
3½
3½

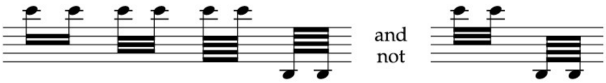
ADDITIONAL BEAMS

The outer beam moves further away from the notehead to allow space for additional beams. Beams should never be closer to the notehead than the correct position of the semiquaver beam (2½ spaces). Extend stems for the additional beams:


stem length
3¾
4½
3¼
4
and
not
3½
3

NOTES ON LEDGER LINES

There must be one clear stave-line between the innermost beam and the first ledger line:

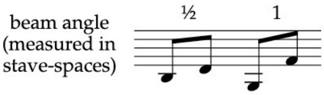


Angled beams

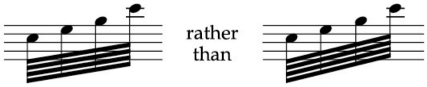
DEGREE OF BEAM ANGLE

The angle of beams gives individual character to a page of printed music. Different music setters may use slightly different angles.

Beam angles should not deviate far from the horizontal because the eye perceives duration on the horizontal plane. Usually, they cross no more than one stave-line. Thus the wider the interval, the more flattened the beam angle becomes in relation to the size of the interval:

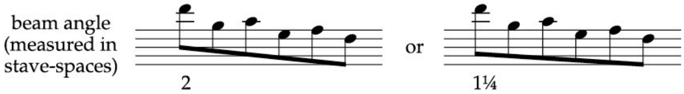

beam angle
(measured in
stave-spaces)
½
1

Avoid steep angles through stave-lines, as these create an uncomfortable visual lattice effect:

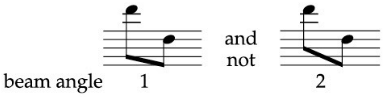

rather
than

Slight angles through stave-spaces should be avoided (see *Angled beam within the stave*, below).

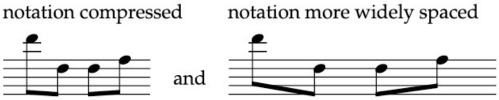
A long group of notes may have a beam that crosses one or possibly two stave-spaces:


beam angle
(measured in
stave-spaces)
2
or
1¼

To avoid creating a steep beam angle the beam of shorter groups should not cross more than one stave-space:

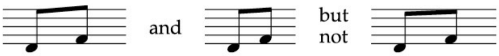

beam angle
1
and
not
2

Notes spaced very close together horizontally (closer than three spaces) take only a slight angle (¼ or ½ space) regardless of the interval:


notation compressed
and
notation more widely spaced

ANGLED BEAMS WITHIN THE STAVE

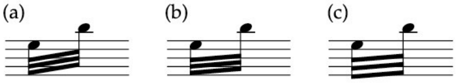
Both ends of a slanted beam should be attached to a stave-line. This is the engraving tradition: no beam starts or finishes in the middle of a stave-space, since the white space between stave-line and beam results a thin wedge that is likely to 'fill in' at a small stave size or with poor reproduction or print resolution:



Adding a second and third beam: the correct placing of the quaver beam ensures that neither end of a semiquaver beam is in the middle of a space (see *Beam placing within the stave*, p. 17).

With the addition of a third beam, the beams must slant a whole stave-space (a). Any other angle will result in one of the beams beginning or ending in the middle of a stave-space (b), which is less than satisfactory.

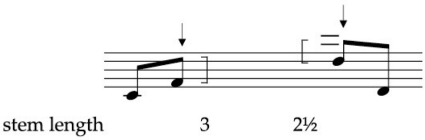
In the past, to ensure both ends of all beams are attached to stave-lines, some editions have slightly widened the distance between beams to allow for an angle of less than a stave-space (c). This is a good compromise:



(For a detailed study of beam angles, see Ted Ross, *The Art of Music Engraving and Processing*.)

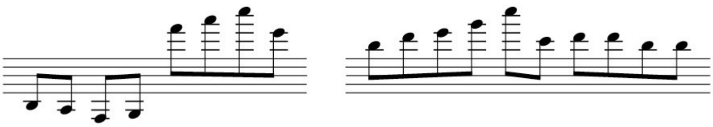
ANGLED BEAMS MODIFYING STEM LENGTH

The stem that is going to be the shorter determines the starting point of the beam (marked ↓ below). This stem may be shortened to 3 stave-spaces (a seventh) when inside the stave and to 2½ stave-spaces (a sixth) when outside the stave. The wider the interval the longer the other stem(s) must become to join the beam:



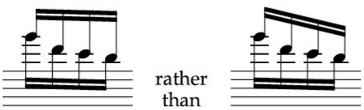
NOTES ON LEDGER LINES

When all the notes of a beam fall outside the first ledger line, the beam takes only a slight slope, regardless of the pitches. Intervals of a second take a slope of ¼ stave-space; all wider intervals take a slope of ½ stave-space:



BEAMS OUTSIDE THE STAVE

Some editions have steeper angles outside the staves since there is no need to take account of crossing stave-lines. However, matching angles look better:

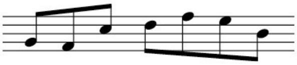


Direction of beam angle

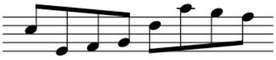
The beam is angled in the direction of the interval for a pair of notes or the outside interval for a group of notes.

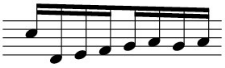
MULTI-DIRECTIONAL BEAMED GROUP

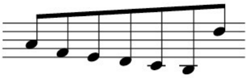
The outer notes of the group determine the beam direction:



This is regardless of the direction of the majority of the notes:

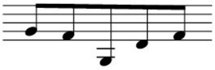




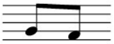


(But see also groups of concave shape, opposite.)

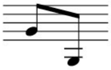
The beam angle reflects the interval between the outside notes, and not the angle of the group's most extreme interval:



is beamed as

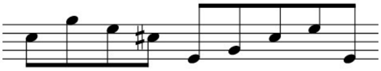


and not

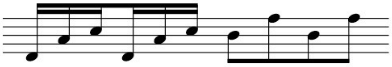


The beam is horizontal when:

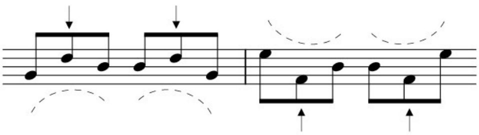
(a) the group begins and ends with the same note:

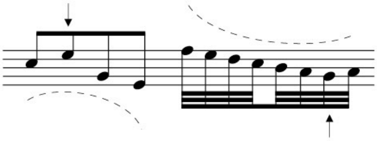


(b) there is a repeated pattern of pitches:

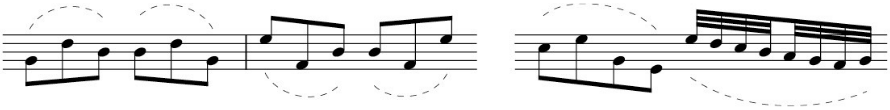


(c) an inner note (marked ↓ or ↑) is closer to the beam than either of the outer notes. Such a group forms a concave shape:

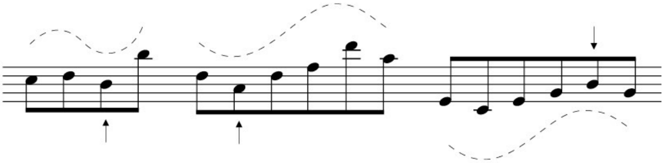




A group of convex shape takes a sloping beam:

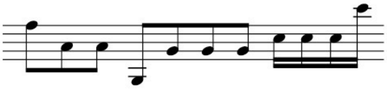


A group with both shapes takes a horizontal beam since there is an inner note (↓ or ↑) that is closer to the beam than one of the outer notes:

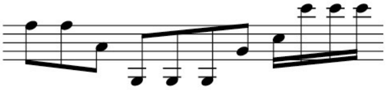


TWO PITCHES ONLY IN A GROUP OF THREE OR MORE NOTES

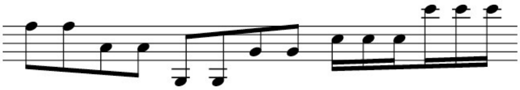
Where there is only one different note at the beginning or end of the group and this note is furthest away from the beam, the beam is horizontal:



When this single note is closest to the beam, the beam slopes:



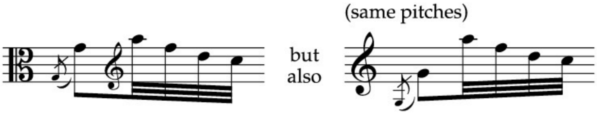
Where there is an equal number of each note, the beam may slope:



Alternatively, these beams may remain horizontal (this can look better in repeated figuration).

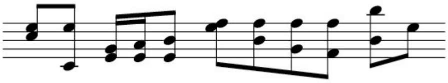
CLEF CHANGE WITHIN A BEAMED GROUP

The beam slants according to the position of notes on the stave, regardless of a clef change. Lengthen a stem so that a beam does not run through the new clef:



CHORDS

The note closest to the beam determines the beam angle:

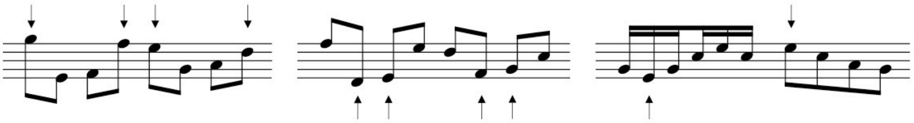


Stem direction on beamed groups

In order to beam together notes that would alone take different stem directions, one or more notes takes stems in the 'wrong' direction.

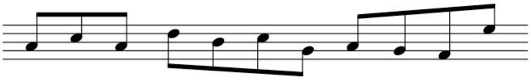
EQUAL NUMBERS OF NOTES EITHER SIDE OF THE MIDDLE LINE

The note furthest from the centre of the stave (marked ↓ or ↑) dictates the stem direction:

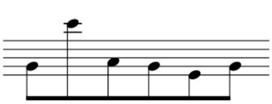


UNEQUAL NUMBERS OF NOTES ON EITHER SIDE OF THE MIDDLE LINE

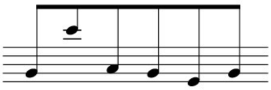
The majority of stems go in the 'correct' direction:



The exception is when a minority of notes are much further from the middle stave-line than the majority. In this case it is better to have a majority of shorter stems in the 'wrong' direction, rather than many long stems:

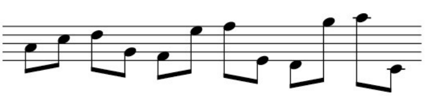


rather than

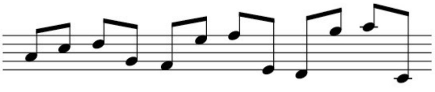


GROUPS WITH NOTES EQUIDISTANT FROM THE MIDDLE LINE

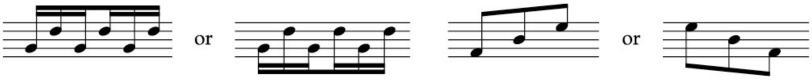
For a two-note group, either stem direction is valid:



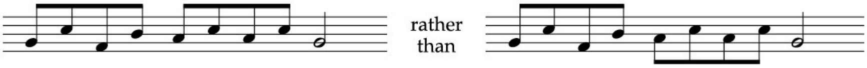
or



The same is true when equal numbers of notes are equidistant from the middle line:



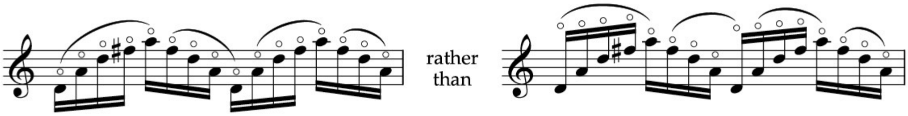
The context may determine the direction. For example, notes adjacent to the group in question may take stems in one particular direction:



Where there is no obvious case for either direction, it is the convention to use down-stems. Editions that use down-stems exclusively for middle-line notes use down-stems for all groups with notes equidistant from the middle line as well.

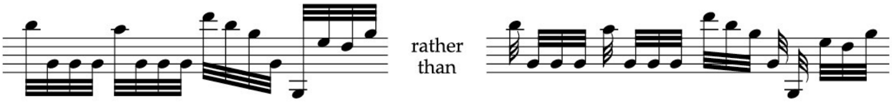
VISUAL CONSIDERATIONS

When groups within a passage together roughly span the width of the stave, visual considerations may suggest maintaining the same stem direction for the whole passage. In the following example, this allows all slurs and harmonic indications to remain next to their noteheads:



Dividing beams for wide intervals

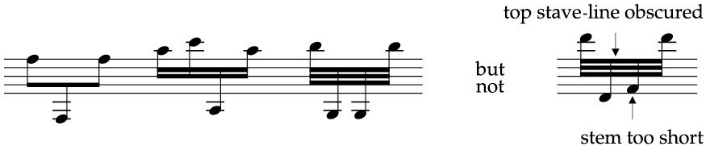
Groups with wide intervals take up a disproportionate amount of vertical space outside the stave. Such groups are sometimes divided so as to contain the stems within the stave. This is visually unhelpful as the grouping of beats is confused:



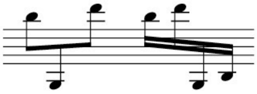
(See also *Beams with opposite stem directions*, p. 26.)

Beams with opposite stem directions

Very wide intervals may take a beam centred between the stems in order to save vertical space and long stems. This is provided that no stem is shorter than a sixth (2½ spaces) and that the top and bottom stave-lines remain clear of a beam:



Where the outside notes are at a different pitch, slope the beam in the direction of the outside interval, since a slanted beam is more conspicuous against stave-lines than a horizontal one:



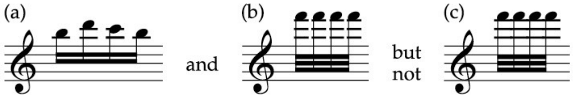
(For beaming notes with stems in opposite directions across two staves of a braced part, see *Double-stemmed beams*, p. 315.)

Ledger lines

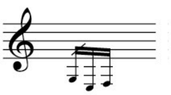
Ledger lines are an extension of the stave. They are spaced the same distance apart as stave-lines, but they are about twice as thick.

It is important that ledger lines are visibly thicker than stave-lines so that a player reading a passage of ledger-line notes can take in the number of ledger lines at a glance.

The ledger line extends slightly beyond either side of the notehead and is just over two spaces long (a). Ledger lines of adjacent notes should not join up (c); the lines may be slightly shortened in cramped conditions (b):



Grace notes take ledger lines that are shorter and thinner than full-sized notes, in proportion to their smaller noteheads:

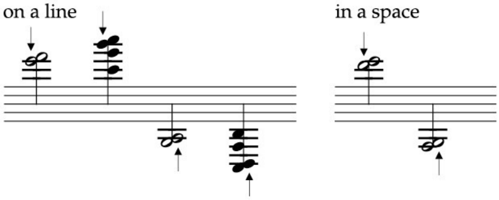


(See *Grace notes: Design*, p. 125.)

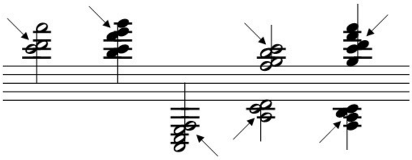
ADJACENT-NOTE CHORDS

Ledger lines extend beyond the noteheads on both sides of a stem, between the stave and the outermost pair of adjacent notes.

When the displaced note (marked ↓ or ↑) is on a line, the ledger line extends the full width of both notes; when the displaced note is in a space, the last ledger line is shortened to single notehead width:



Notes further from the stem end than the adjacent pair take single-width ledger lines:

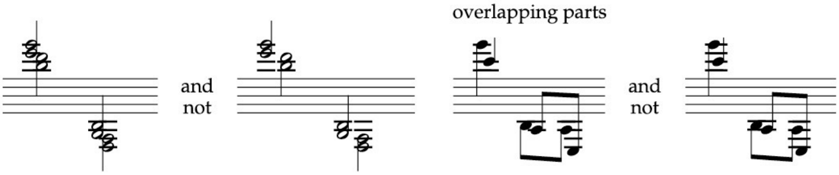


(For notation of *Adjacent-note chords*, see p. 48.)

DOUBLE-STEMMED ADJACENT NOTES AND OVERLAPPING PARTS

The two parts may share ledger lines, which should extend either side of all noteheads between the stave and the displaced part.

When parts overlap, ledger lines that are not shared by the part whose pitch is closest to the stave should not cut through its stem:



(See also *Double-stemmed writing: Overlapping parts*, p. 53.)

Octave signs

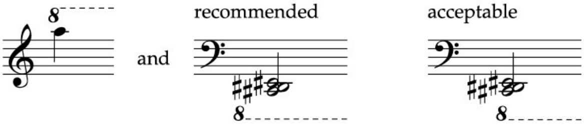
The octave sign is written in italic, the numeral '8' is 1½ stave-spaces high. The optional 'va' is placed flush with the top of *ottava sopra* (8^{va}), flush with the base of *ottava bassa* (8_{va}).

		raise pitch	lower pitch
ONE OCTAVE	in Italian	*ottava sopra* or *ottava alta*	*ottava bassa*
	notated	***8***‾‾┐ or ***8***^{va}‾‾┐	***8***‗‗┘ or ***8va***‗‗┘ or ***8va bassa***‗‗┘ or ***8ba***‗‗┘
TWO OCTAVES*	notated	***15***‾‾┐ or ***15***^{ma}‾‾┐	***15***‗‗┘ or ***15ma***‗‗┘
THREE OCTAVES	notated	***22***‾‾┐ or ***22***^{ma}‾‾┐	***22***‗‗┘ or ***22ma***‗┘

* French editions use ***16***‾‾┐

Placing

Place the numeral just left of the first note to which it applies:



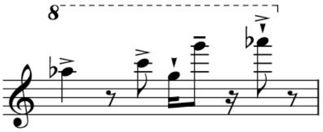
If a note or chord has accidentals, the numeral may be placed flush with the extreme left accidental rather than aligned with the notehead. However, the exact placing often depends on the available space. When space is tight, the numeral may be placed directly above or below the note.

The extension line

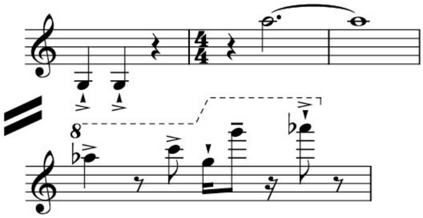
Indicate the extent of the transposition with a line of dashes (hereafter called a dotted line). The line extends from the top edge of the *8* for *8 sopra* and the base of the *8* for *8 bassa*, and runs parallel to the stave.

Usually the octave sign will be outside all other notation. It must never cut through other symbols, as this is visually confusing. If restricted vertical space does not permit the dotted line to be parallel with the stave, it can be lowered or raised to follow the contour of the notes, in order not to collide with other notation:

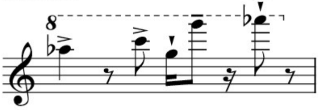
preferable (requires ample vertical space)



acceptable (with restricted vertical space)

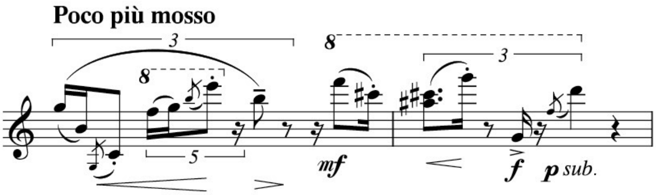


incorrect



However, avoid deviation from the horizontal if at all possible.

When there are phrase marks or tuplet brackets as well as octave signs, whichever covers the longest duration goes on the outside:



FOR A WHOLE SYSTEM

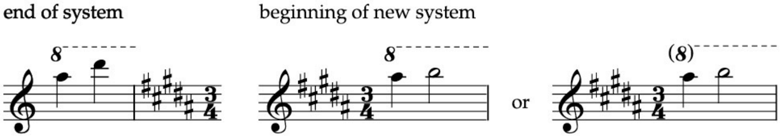
Place an extension line for a whole system outside all other notation (notes, short slurs, articulation and dynamics), since the dotted line visually cuts off all information outside it. In addition, once the line is established, the player does not need to keep referring to it, and therefore information that potentially changes (e.g. dynamics) is better placed closer to the stave.

Only tempo markings and piano pedal indications remain outside an octave extension line that continues for a whole system.

ACROSS A SYSTEM BREAK

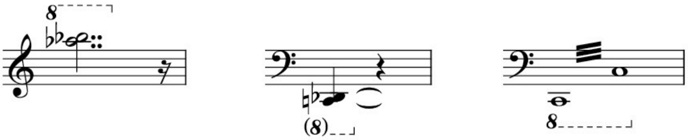
End of a system: extend the dotted line as far as the last barline (and not beyond it).

Beginning of a system: place the *8* (optionally in brackets) just before or flush with the first note:

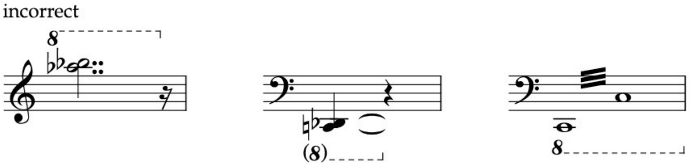


Length of the extension line

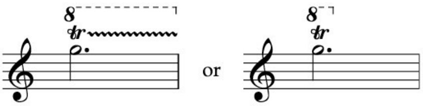
Terminate the octave transposition with a corner ⌟ (rather than just a vertical stroke, as this is less visible). Place this immediately after the last notehead(s), including duration dots:

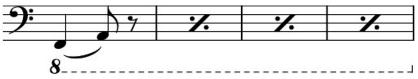


Although the practice of some editions, avoid terminating the line at the end of the duration:



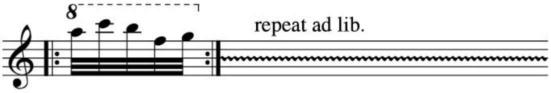
However, the line extends for the written duration of the note when a trill is notated with a wavy line and in repeated bars when the following abbreviation is used:





(For *Repeated bars*, see p. 231.)

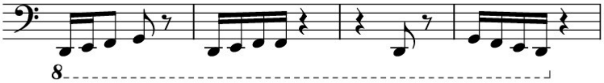
When material to be repeated is notated inside repeat marks, the extension line continues only for the length of the notated material, not for the length of the repeat:



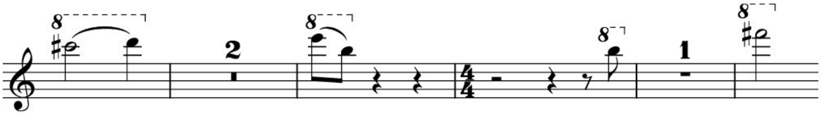
(See also *Independent repetition*, p. 621.)

EXTENSION LINE ACROSS RESTS

Continue an extension line across short rests rather than using separate octave signs:

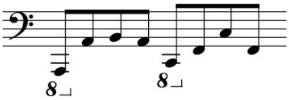


When rests are more extensive, the notes between them take separate octave signs:



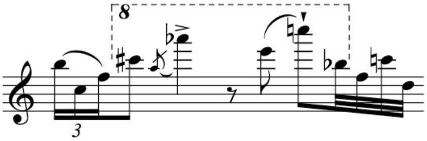
Octave sign for single notes

It is advisable to use an end corner after the *8*, so that it is absolutely clear that only the single note is affected:



Vertical extension line

When the octave indication is some distance above or below the first or final note to which it refers, extend a vertical dotted line to the notehead, for clarity:



Clefs indicating notes to sound at a different octave

The clefs 𝄠 𝄣 may be used in a full score to indicate that instruments such as the piccolo and double bass are written respectively an octave lower and higher than sounding (see *Octave-transposing clefs*, p. 506).

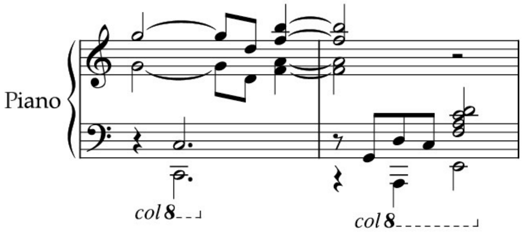
Do not use these clefs to replace genuine octave transpositions (Britten used them in his late scores, especially for piano and harp). The clefs tend to go unnoticed, as the player is unaccustomed to reading them.

'With the octave'

The Italian term *coll'ottava* written *col 8(va)* or *con 8(va)* is a shorthand for writing octaves in keyboard music. The indication is followed by a dotted line for its duration.

Placed above the stave, the indication means *col 8va sopra*: 'with the octave above the written pitch'. Placed below the stave, the indication means *col 8va bassa*: 'with the octave below the written pitch'.

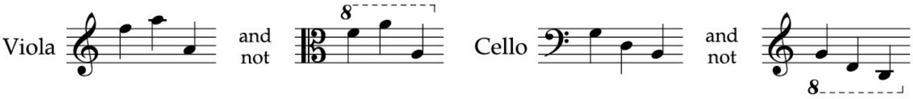
If there is room, it is always better to write out the octave pitches. However, to do so in a passage such as the following would take up a lot more space:



Using ledger lines or octave signs

Use up to at least three ledger lines before transposing pitches up or down an octave and using an octave sign.

Never use an octave sign when an instrument could move into a higher-pitched or lower-pitched clef:



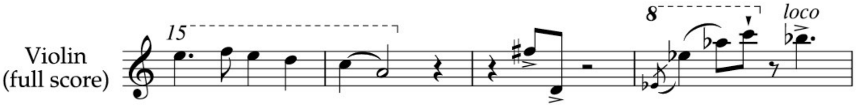
Music for woodwind and strings can use up to five ledger lines before moving into an octave transposition. Octave transpositions are unhelpful, as a player identifies a written pitch with a given fingering. The fingering does not duplicate the other octave, as it does on a keyboard (see *Woodwind: Octave transpositions to replace ledger lines*, p. 255).

Brass instruments and voices should never need octave signs.

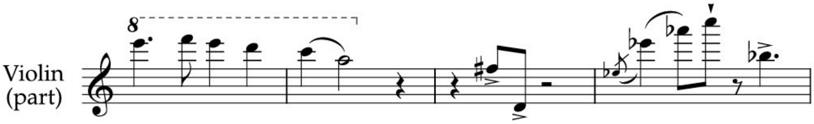
Keyboard and harp music may make more extensive use of octave signs than other instruments (see example *More extensive use of octave signs*, p. 34).

In performance material, always use ledger lines in preference to octave signs for isolated notes or chords. Even in piano music it is more helpful to show the contour of the music in order to alert the player to the necessary leap of the hand. Players can easily read at least four ledger lines at a glance.

A full score that is not used to play from may replace ledger lines with the octave or even the two-octave sign as necessary, to save space between staves:



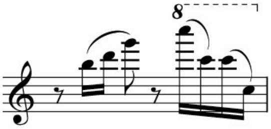
These octave signs should not be transferred to a playing part, except where absolutely necessary:



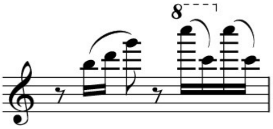
Using octave signs

A written change of octave tends to obscure the contour of a line and so, wherever possible, keep a phrase intact at the chosen octave. Change octave between phrases. Where this is not possible, change octaves between beats or half-beats; an octave change in the wrong place (⌴) obscures the relationship between the intervals:

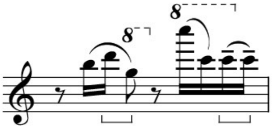
recommended



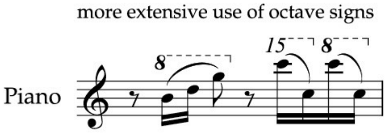
acceptable



incorrect

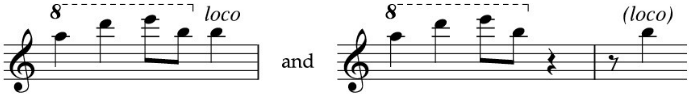


Even when a passage makes more extensive use of octave signs, the pitches of each figure should be preserved at the same octave, so that the intervallic leaps are clearly visible:

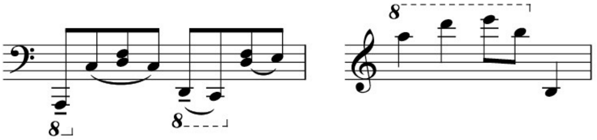


Using *loco*

The octave transposition is cancelled by *loco* (Italian, 'in place'), which should be used after an extended passage of octave transposition. It is also used when the same written (or a neighbouring) pitch is immediately repeated after the octave transposition, and as a reminder after a rest (where it may take brackets):



It need not be used where frequent alternation of *ottava* and *loco* pitches would be cluttered by *loco* indications, or where a significant pitch difference renders it unnecessary:



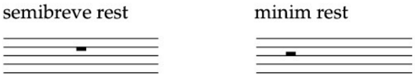
(For octave signs affecting accidentals, see *Octave changes*, p. 79; for use in keyboard writing, see *Octave signs*, p. 324.)

Rest symbols

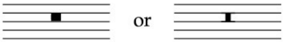
Design

BREVE, SEMIBREVE AND MINIM RESTS

These rests are the length of a minim notehead. The semibreve and minim rests are ½ stave-space thick. The semibreve hangs from the second line down; the minim rest sits on the centre stave-line:

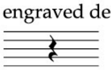


The breve rest occupies a whole stave space and is the same length or, more commonly, half the length of the semibreve and minim rests:



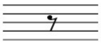
CROTCHET REST

The rest starts in the top stave-space and finishes in the bottom space. The bottom hook cuts through the second stave-line from the bottom:

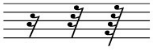


QUAVER AND SHORTER RESTS

The quaver rest sits above the middle stave-line and extends down to the second stave-line from the bottom:



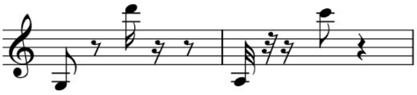
Shorter rests are placed so that each hook is in a separate stave-space. The 𝄿 occupies the middle two spaces, the 𝅀 the top three spaces, the 𝅁 all four spaces:



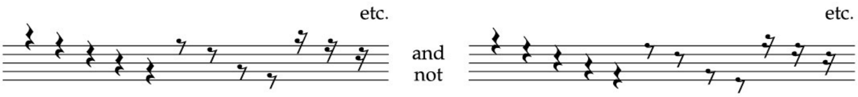
(For rest alignment with another part, see *Horizontal position of rests*, p. 159.)

Vertical placing of rests within the stave

Rests remain centred within the stave regardless of the pitches of surrounding notes:

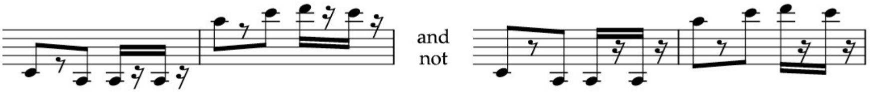


The rest moves up or down within the stave when a beam joins notes across a rest and in double-stemmed writing (see pp. 36–7). From the centre of the stave, rests move an exact number of stave-spaces up or down, so that they remain correctly positioned in relation to the stave-lines:



BEAMS ACROSS RESTS

Place the beam in its normal position. If necessary, rests may move away from the centre of the stave to a position closer to surrounding notes, in order to avoid colliding with a beam. It is better to reposition rests than to have them in the middle of the stave, as this forces surrounding stems to be very long (and therefore indication of rhythm becomes too far from the notes):



(See also *Beaming across rests*, p. 164.)

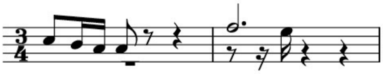
Placing rests in double-stemmed writing

Two parts on a stave with different durations require their own sets of rests.

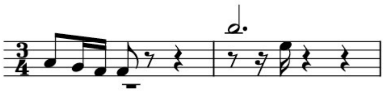
A rest moves further from the centre of the stave or to outside the stave should parts otherwise collide.

RESTS WITHIN THE STAVE

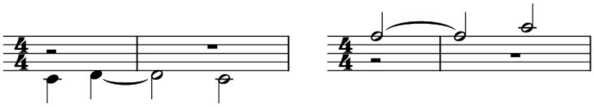
For clarity, upper-part rests are usually placed above the centre stave-line, lower-part rests below the centre line:



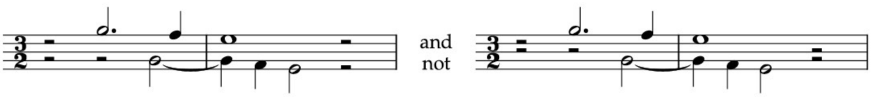
When one part lies outside the stave (on ledger lines), crotchet, quaver, and shorter-value rests for the other part may move back to the centre of the stave:



Semibreve and minim rests must never stray across the centre stave-line:



When both parts have rests simultaneously, as in strict contrapuntal writing, separate these with at least one stave-line:

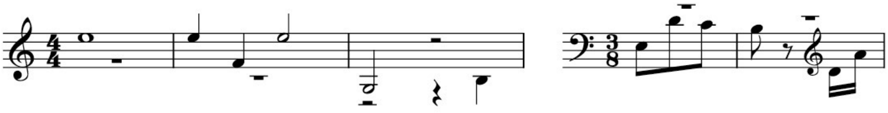


Many editions place all minim and semibreve rests on only the outside stave-lines, to avoid confusion; some avoid rests on the middle stave-line, for the same reason (see $\frac{4}{4}$ example below).

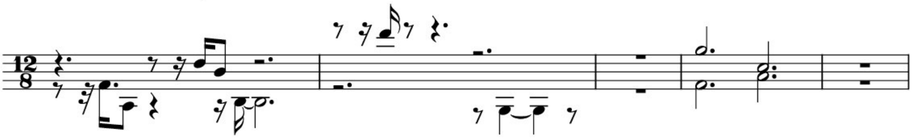
Except in strict contrapuntal writing, parts share a rest wherever possible (see *Rests*, p. 528; also, *Tacet woodwind and brass parts*, p. 529).

RESTS OUTSIDE THE STAVE

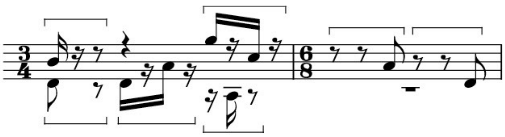
Minim and semibreve rests are placed on a ledger line. The ledger line moves far enough away from the stave to be outside the other part:



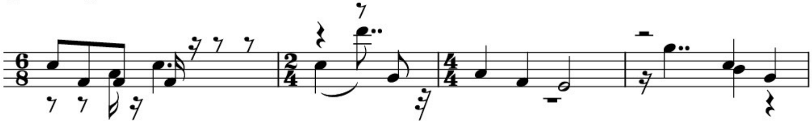
The space in which a rest centres, or its distance from the stave, should be on the same level as surrounding pitches. Thus the semibreve rests in the following example move lines to reflect the changing position of surrounding pitches. When a note is on a ledger line, place the rests above the top stave-space (or below the bottom stave-space for notes on ledger lines beneath the stave):



Rests that are part of a beat (marked ⊓) should align horizontally:



When the position of a rest is displaced by a note of the other part, the rest moves further away from the stave. This applies to all the rests in the following example:

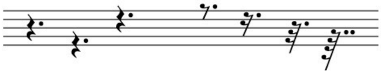


When the notation becomes this complicated, it is better to separate the parts on to individual staves, for clarity.

(For use of rests in keyboard writing, see *Free part-writing: Use of rests*, p. 311, and *Strict counterpoint*, p. 313.)

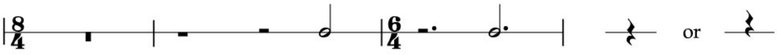
Dotted rests

The dot remains in the same position relative to the rest, regardless of the rest's position on the stave:

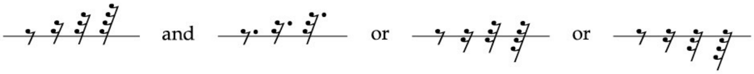


Rests on a single line

The breve rest hangs from the line (as a semibreve rest does). The middle of the crotchet rest or its base hook intersects the line:



For quaver rests and shorter values, either the bottom stroke intersects the line, or the hooks are placed either side of the line:



(For placing rests on staves of two, three or multiple lines, see *Line notation: Placing rests*, p. 284; for use of rests, see *Grouping rests according to the metre*, p. 160.)

Barlines

Single barlines

The barline is thicker than a stave-line, and therefore conspicuously thicker than a stem. It is very important that barlines stand out from stems, especially when there are long, complicated bars in a single-stave instrumental part.

A barline connects all staves at the beginning of a system. This particular barline is called the systemic barline (see p. 521). A single-stave part does not have this barline at the beginning of the stave. (A single stave in a full score does, however: see *Square brackets*, p. 516; also, *Barring through a score*, p. 518.)

Thin double barlines

These mark divisions between sections in a piece. They are of ordinary barline thickness, and are placed about ¾ stave-space apart.

It is misleading to use them with every metre change, as they will appear to indicate new sections.

When two movements follow one another without a break, the end of the first movement takes a thin double barline (see *Layout between movements*, p. 486).

Final barlines

The thick final line is of beam thickness. The thin barline is placed ½ stave-space before it. The final double barline is used only at the end of a movement.

(See also *Da Capo and Dal Segno layouts: Double barlines*, p. 240.)

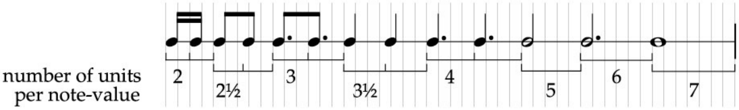
Repeat barlines

These use the final double barline design together with repeat dots. At a barline, the repeat sign replaces the barline (see *Placing repeat barlines*, p. 233.)

Rhythmic spacing

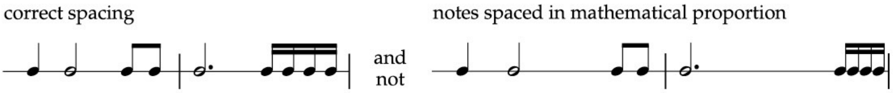
Musicians rely heavily on good spacing to read rhythm. Poor horizontal spacing is often the main problem of badly presented music and hinders the reading of it.

Durations should be spaced in relative proportion to each other, each value taking only a little more space than the next shortest value (units of relative measurement are given as a guide to the spacing proportions):

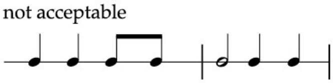


Note-values and rests are spaced in exact mathematical ratio only when metrical notation is superseded by literal time-space notation, in which a given horizontal length represents duration (see *Proportional spacing*, p. 629).

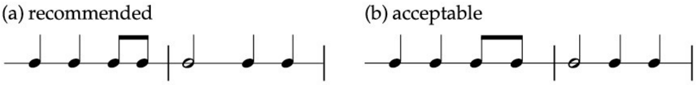
Because of the excessive space it would afford to longer durations, notes of unequal length are not spaced in mathematically exact proportion. Instead, longer durations are compressed to create more even spacing. Notes or rests of different durations should have just enough space to appear longer or shorter than those surrounding them, although in reality they may be virtually equidistant. Musicians are so used to this spacing that they appreciate the slightest differences:


correct spacing
and not
notes spaced in mathematical proportion

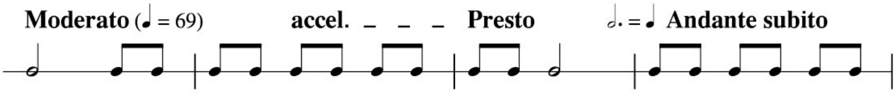
The eye will confuse rhythms only when the relative distance between notes or rests contradicts their duration. The following example demonstrates how poor spacing hinders reading the rhythm:


not acceptable

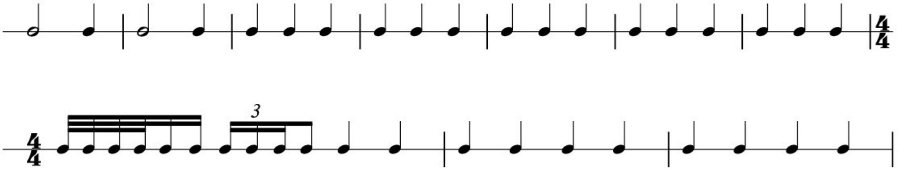
Each longer value of the above example should have more space than its shorter neighbour (a), or at least as much (b):


(a) recommended
(b) acceptable

Notes of equal duration require equal spacing for an entire system, even when the speed of the note-values changes:

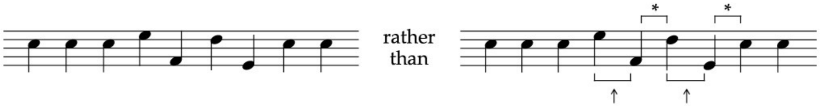

Moderato (♩ = 69)
accel. _ _ _
Presto
𝅗𝅥. = ♩ Andante subito

The uniform space allotted to a note-value can vary from system to system according to the number of bars on that system. For a passage of like rhythms, where the number of notational symbols is roughly equal, aim to place a similar number of bars on adjacent systems (but see also *Offsetting barlines*, p. 489). Where the density of the notation increases, the uniform space for a note-value may need to be noticeably different from that of an adjacent system:



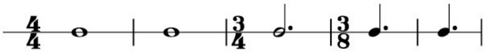
The barline may go where the position of the next beat would be. It usually goes slightly earlier, especially where space is limited.

In certain cases, spacing should be adjusted to create an illusion of evenness. Adjacent stems 'back to back' can otherwise look too close together (marked *). Notes with stems away from each other can look too far apart (marked ↑):



Notes of bar-length duration

In traditional engraving, when a bar contains a single note and there are no other durations in any part, the note is placed just left of the centre of the bar. Such bars, by definition, are usually fairly narrow. This spacing creates a better balance than a single note positioned at the beginning of the bar:



In widely spaced bars, the note can be placed closer to the barline so as not to appear isolated.

When there are other durations in other parts, the single duration is placed at the beginning of the bar as normal.

Spacing symbols

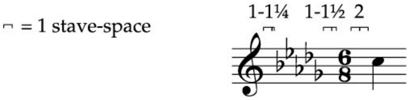
The essence of good layout is evenly spaced symbols, as this is what the eye most easily assimilates. Therefore, ideally, each system should contain a comparable number of symbols (notes or other notational characters). The spacing of symbols may widen or narrow according to how numerous they are on a system. Where space is limited, the distance between characters should not be less than ½ stave-space and no characters should collide.

The following spacing is recommended, as this illustrates traditional engraving practice.

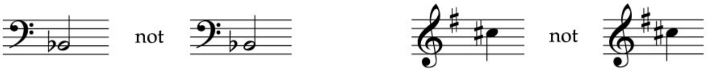
Beginning of the system

Separate the clef, key signature, time signature by 1–1½ stave-spaces.

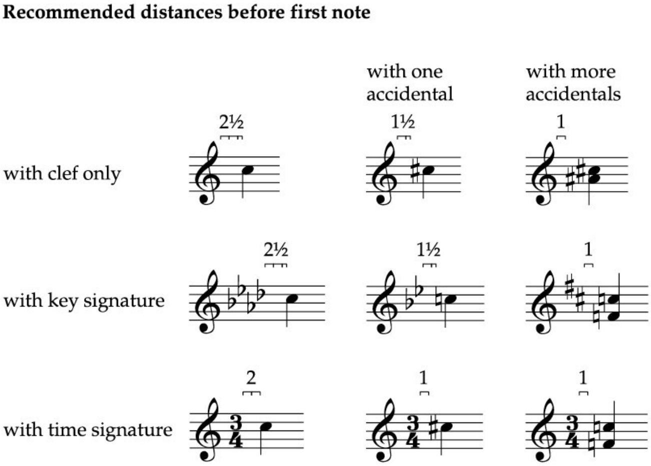
The greatest distance between symbols should precede the first note. For a note without an accidental, allow 2–3 stave-spaces:


⌐ = 1 stave-space
1-1¼
1-1½
2

Notes can be placed slightly closer to a time signature than to a clef or key signature. An accidental must be sufficiently far from a clef or a key signature for it not to be mistaken for one:



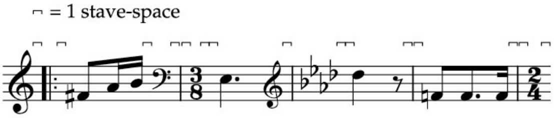
A first note or chord with an accidental may move closer to the preceding symbol(s). When further accidentals are added, these move closer to the clef. However, an accidental should never be closer to a preceding symbol than one stave-space:


Recommended distances before first note
with one accidental
with more accidentals
with clef only
2½
1½
1
with key signature
2½
1½
1
with time signature
2
1
1

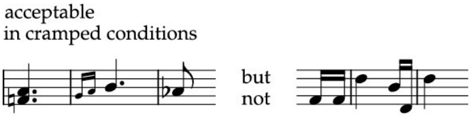
An accidental closes up as far as possible to its following note or fellow accidental without colliding (see also *Arranging accidentals for chords*, p. 87).

Mid-system

Allow a stave-space after a clef and on either side of a barline before a notational symbol. It is good practice to allow two spaces after a time signature or key signature. Where a barline comes before the end of the stave, allow a stave-space at the end of the stave:

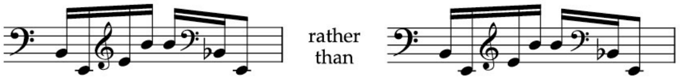


Where space is limited, an accidental or grace note may be closed up to within ½ space of a barline. Stems must never come closer to a barline than one space, because the close parallel lines are difficult to read:

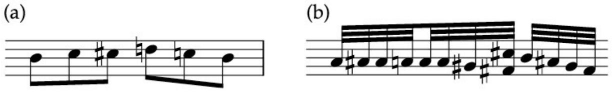


ADDITIONAL CLEFS AND ACCIDENTALS

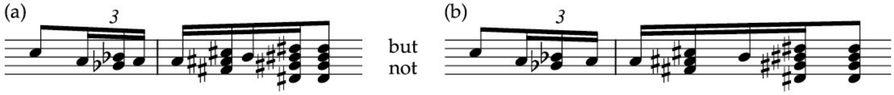
Where notes are spaced close together, the addition of clef changes and accidentals can distort the rhythmic spacing. Although it is sometimes better to increase the spacing between notes to accommodate the clefs and accidentals, this wider spacing can be unhelpful, as well as impractical. Instead, reduce the space around clefs and accidentals to ½ space, to minimize distortion:



Where possible, note-spacing should remain unaffected by the addition of accidentals. One accidental can usually be accommodated (a) unless notes are very close together (b):



Two or more accidentals usually require extra space (a); it is better not to create wider spacing so as to space notes at identical intervals, as this disrupts the even spread of symbols (b):



(For spacing and layout, see *Casting off*, p. 487, and *Horizontal spacing in score format*, p. 490.)

2

Chords – Dotted notes – Ties

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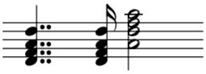
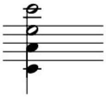
CHORDS

Single-stemmed chords

Two or more notes of the same duration are combined onto one stem to form a chord:

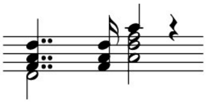


Notes of different duration can be combined onto one stem for a chord only in string writing:



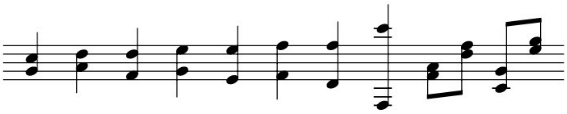
This is because the bow can sustain only two notes at once (see *Triple- and quadruple-stopping*, p. 398).

In all other cases, notes of different duration must take separate stems. The upper part takes up-stems, and the lower part takes down-stems (see *Double-stemmed writing*, p. 52):

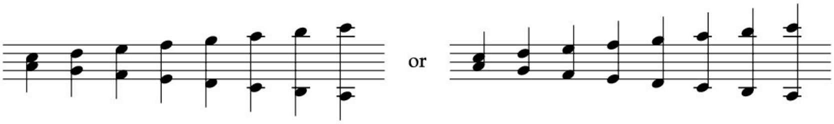


Stem direction

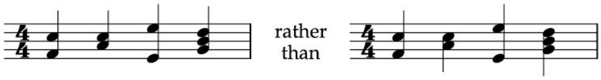
The notehead furthest away from the centre of the stave determines the stem direction. When this note is above the middle line, the chord takes a down-stem; when the note is below the middle line, the chord takes an up-stem:



Stems joining noteheads that are equidistant from the centre of the stave can go in either direction, although many editions use only down-stems:

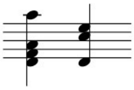


As with stem direction of single notes (see *Stem direction*, p. 13), the direction may be determined by context. The aim is to achieve a consistent stem direction within a phrase, bar or half-bar:

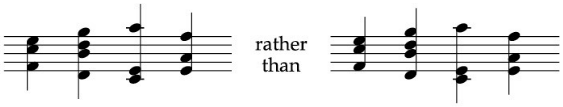


CHORDS WITH THREE OR MORE NOTES

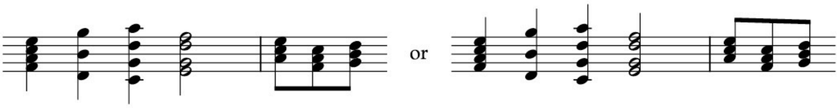
The stem direction is still determined by whichever of the chord's outer notes is furthest from the centre of the stave:



Where the outer notes are equidistant from the centre of the stave, stem direction is determined by the position of the majority of notes. When the majority is above the middle stave-line, the chord takes a down stem; when the majority is below the middle line, the chord takes an up-stem:



The following chords have all notes equidistant from the centre of the stave and so can take either stem direction:

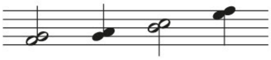


Adjacent-note chords

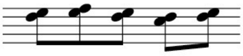
Single stems

TWO ADJACENT NOTES

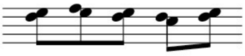
To write intervals a second apart, place the lower note on the left-hand side of the stem, the upper note on the right-hand side:



Adjacent-note chords slope diagonally from bottom left to top right, even when this means a repeated note changes stem-side from chord to chord:

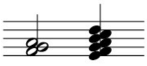


and
not



MORE THAN TWO ADJACENT NOTES

The majority of notes fall on the 'correct' side of the stem. Thus when there are an odd number of notes, the lowest note goes on the left-hand side for up-stems, and on the right-hand side for down-stems:



and
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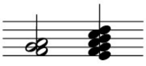

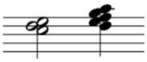

and
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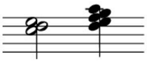
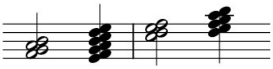
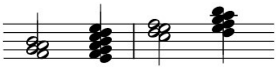


When there is an even number of notes, the lowest note always goes on the left-hand side of the stem:

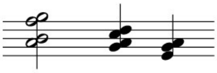


and
not

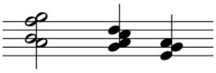


The French system of placing the highest and lowest notes on the 'correct' side of the stem should not be followed, since often this forces the lower of two adjacent notes to the right (rather than to the left) side of the stem:

correct layout

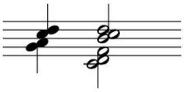


French system

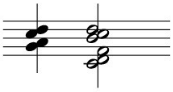


Double stems

Arrange chords so that notes on the 'correct' side of each stem align vertically:

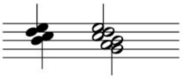


and
not



(This same principle should be used to align adjacent-note chords in a score – see *Vertical alignment*, p. 490.)

The only exception is when a tone or semitone separates the two parts. In this case, the lower part is displaced to the right (if the parts are vertically aligned, it is hard to tell which note belongs to which part):



and
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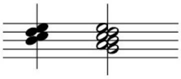
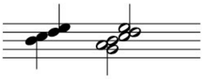


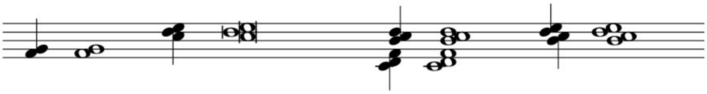
nor



(See also *Offsetting unison and adjacent noteheads*, p. 53.)

Stemless notes

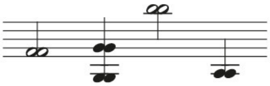
Stemless noteheads are arranged as if they were stemmed:



Chords with single-stemmed unison notes

Perfect unisons

Place one notehead each side of the stem:

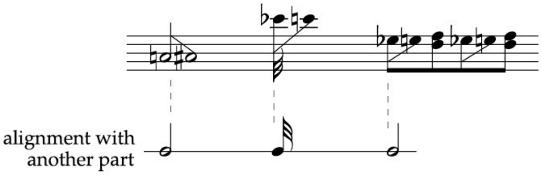


(For *Dotted unisons*, see p. 58.)

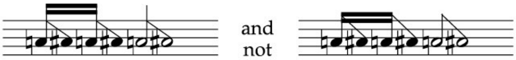
Altered unisons

Place each notehead after its own accidental in ascending chromatic order (flat to sharp).

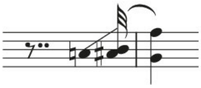
Usually a note is displaced to the right of a chord, and joined to the vertical stem by a diagonal one. Position the diagonal so as to avoid cutting through (and thereby obscuring) the second accidental:



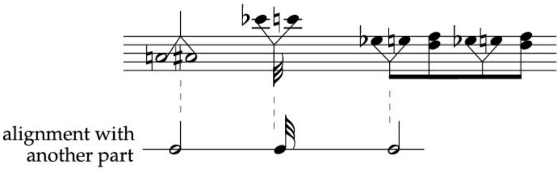
Extend the vertical stem beyond the point where the diagonal joins it. Any tails or beams should be clear of the diagonal stem:



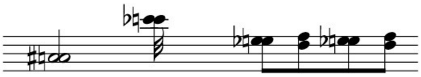
Occasionally, it is more convenient to displace a note before the rest of the chord, for example when there is more space available before rather than after the chord. Another part would align with the stem:



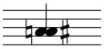
A two-note chord can, alternatively, splay out from the vertical stem in both directions, using a branching stem:



In very cramped conditions, it is acceptable to place one notehead each side of the stem with both accidentals before both notes. This notation is compact but much less clear, since an accidental is always best placed beside the notehead to which it applies. If this layout is used, both notes must have accidentals, or the two pitches will appear to be the same. The order of accidentals for a chord containing a sharp and a natural sign is ♯♮, since ♮♯ might appear to be a sharp cancelling a double-sharp sign:



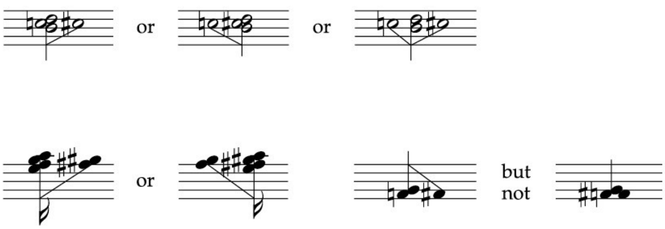
An accidental must never be placed after the note to which it refers, since a note cannot be modified once it has been sounded:



(See also *Accidentals in double-stemmed writing: Altered unisons*, p. 91.)

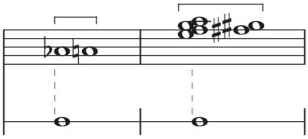
In a note cluster

All noteheads must be attached to a stem so that they are immediately identified as part of the chord. It is not enough that a notehead touches another notehead:



STEMLESS NOTES

A square bracket should encompass simultaneous notes. Align another part with the first notehead, or otherwise where the stem of an adjacent-note chord would be:



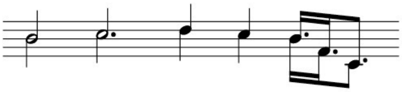
(See also *Keyboard: Note clusters*, p. 326.)

Double-stemmed writing

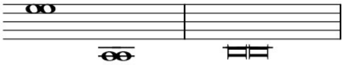
The upper part always takes up-stems, the lower part down-stems, even when pitches overlap (see *Overlapping parts*, p. 53).

Unisons

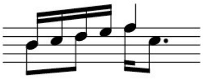
Two parts with the same note-value may share a notehead as long as they take two stems:



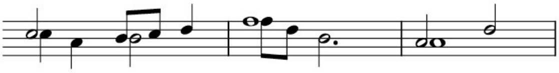
Notes without stems take a separate notehead for each part:



A black notehead can be shared by any black-note durations:



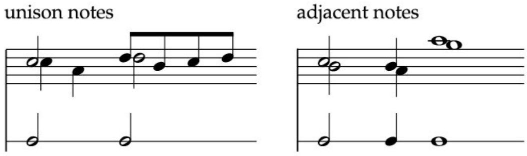
Semibreves, minims and black noteheads should be kept separate from each other:



(See also *Dotted unisons*, p. 58; for keyboard-writing conventions, see *Sharing noteheads in unison*, p. 307.)

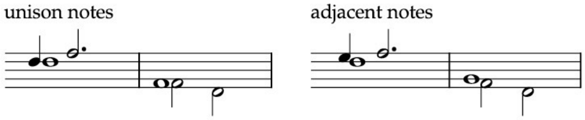
Offsetting unison and adjacent noteheads

Offset the lower part to the right. Vertically align the upper part with a part on another stave:

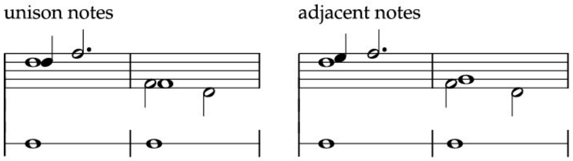


Exceptions to this rule occur when parts overlap (see below; also, *Overlapping parts*, p. 57); and when double-stemmed adjacent or unison notes have only one dotted part (see *Adjacent notes*, p. 56, and *Dotted unisons: One part dotted*, p. 59).

Keep noteheads separate; stems should not touch. Semibreves in particular should not appear to be joined to stems:

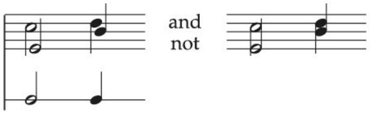


Some editions reverse the order of noteheads so that the semibreve is never adjacent to a stem. The part on the left aligns vertically with a part on another stave (this is the case whichever the notehead arrangement):

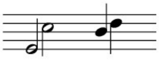


Overlapping parts

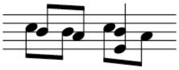
Place a down-stemmed part to the left so that noteheads can overlap. Slightly separate the parts so that the stems do not appear to include both notes. As with adjacent and unison noteheads, it is the part on the left that aligns with a part on another stave:



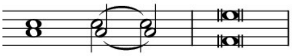
This is more compact than the following:



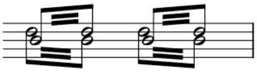
Place a down-stemmed part to the left for overlapping adjacent notes:



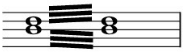
Overlapping semibreves must be divided into stemmed notes in order to show part progression:



and



but not



(For arrangement with ledger-line notes, see *Double-stemmed adjacent notes and overlapping parts*, p. 27.)

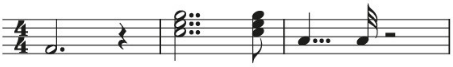
DOTTED NOTES

Most traditional engraving uses a duration dot that is larger than a staccato dot – often twice the size.

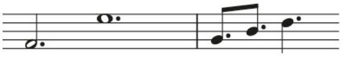
Placing dots relative to noteheads

Place the dot close to its notehead so that it can be spotted immediately – usually a half stave-space's distance.

Double and triple dots should be placed close together and evenly spaced:

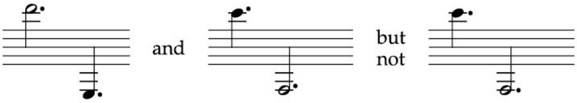


When notes are in a space, place the dot in the middle of that space. When notes are on a line, place the dot in the space above:

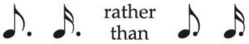


(See also *Double stems*, p. 56.)

Dotted notes on ledger lines follow the same principle. The dot moves above the ledger line when the note is on a line:



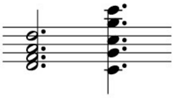
Upstemmed notes with tails: should the end of a tail coincide with the position of the dot and thereby obscure it, it is acceptable to move the dot to the right of the tail:



It is equally acceptable to lengthen the stem.

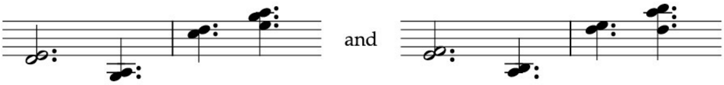
Chords

Every notehead in a chord must take a duration dot. Vertically align the dots after the chord:



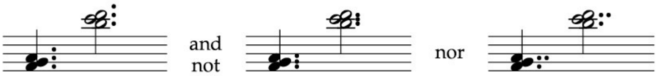
Adjacent-note chords

When the upper note is on a line, the dot moves up into the next stave-space, as usual. When the lower note is on a line, the dot drops to the lower space:

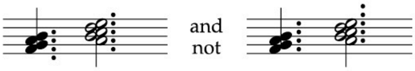


Each dot should always have a stave-space to itself. This same spacing applies to chords on ledger lines as well, where dots should not be bunched up just because there are no stave lines to separate them into individual spaces (see following example).

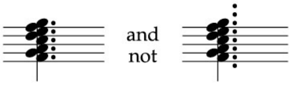
A dot may need to move a stave-space away from its notehead. Do not align the dots horizontally, as this gives double-dotted value to the notes:



Centre the dots on the chord, rather than placing them in one direction, away from the chord:



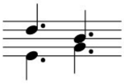
When a dot is forced to be two or more stave-spaces from the chord, its function becomes less relevant. In such cases, use only as many dots as cover the number of stave-spaces taken up by the chord:



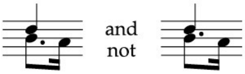
Double stems

LOWER PART ON A LINE

Drop the dot into the space below the lower part:

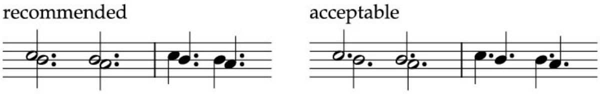


When the voices are close together, this avoids ambiguity as to which part the dot belongs:

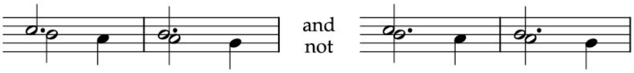


Adjacent notes

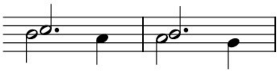
Both parts dotted: the upper dot is usually aligned with the lower dot after both parts (this layout is most compact), although it is acceptable to place each dot closer to each notehead:



One part dotted: each dot is placed next to its notehead, even though this may force a gap between the parts (see bar 1); a dot should not be separated from its notehead by the adjacent note:



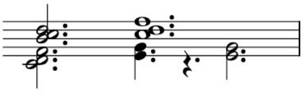
When the upper part is on a line, the upper dot may be placed above the lower notehead (see previous example, bar 2). However, so that the duration dot does not look like a staccato marking for the lower part, some editions place dotted upper notes to the right. Thus the dot is clear of both parts:



(See also *Overlapping adjacent notes*, below.)

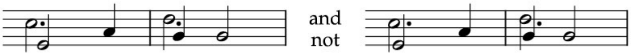
CHORDS WITH ADJACENT NOTES

Align dots vertically for each part, independently of other chords:

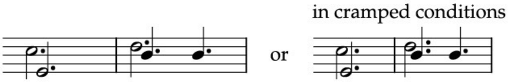


Overlapping parts

Where only one part is dotted, do not separate a dot from its notehead by placing a stem in between:

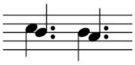


Where both parts are dotted and conditions are cramped, the layout is more compact if both dots follow both notes:

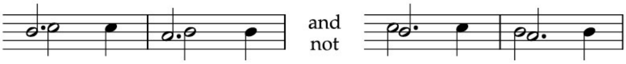


OVERLAPPING ADJACENT NOTES

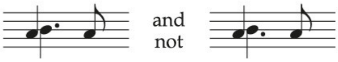
Both parts dotted: the parts may overlap:



One part dotted: the parts should not overlap. Place a dotted up-stemmed part to the left and separate the parts with the dot. If the up-stemmed part goes to the right, it will look as if the down-stemmed part takes the dot:

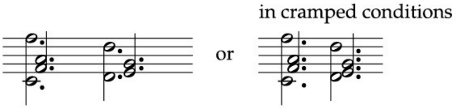


For a dotted down-stemmed part on a line, the dot is forced into the space above, to be clear of the up-stemmed part:



OVERLAPPING CHORDS

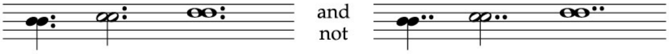
Place the dots beside each chord so that they are not separated from their noteheads by the other part, unless space is limited:



Dotted unisons

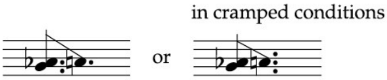
Single stems

Each notehead requires a dot. Each dot must have a separate stave-space, even though the noteheads are in the same space or on the same line; they will otherwise appear to be double-dotted:



CHORDS WITH A PRONGED STEM

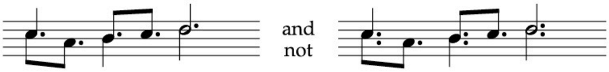
It is best to place the dots after each notehead (they are most visible in this arrangement) except in cramped conditions:



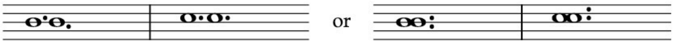
Double stems

BOTH PARTS DOTTED

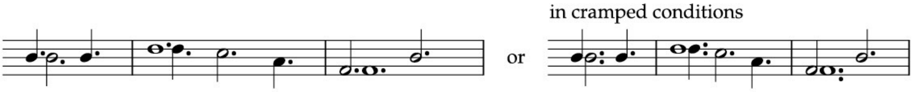
A double-stemmed unison that has one notehead requires only one dot:



However, the unison semibreve requires two noteheads and therefore each notehead should take a dot:

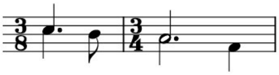


Unless conditions are cramped, notes of different duration take a dot beside each notehead:



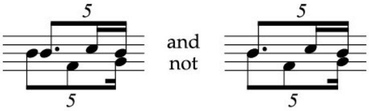
ONE PART DOTTED

It is acceptable for the dotted note to share a notehead with a note without a dot as long as the rhythm of both parts is absolutely clear:

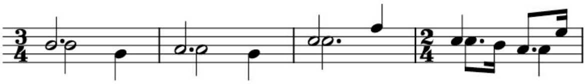


(This is a useful convention for repeated patterns in keyboard music – see *Sharing noteheads in unison*, p. 307.)

Should the rhythms appear ambiguous (the example above may well be considered inadequate), use separate noteheads as this will always be the clearest arrangement:

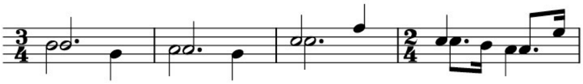


The normal arrangement is to place the upper part to the left:

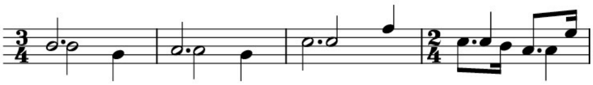


However, there are two other equally valid approaches.

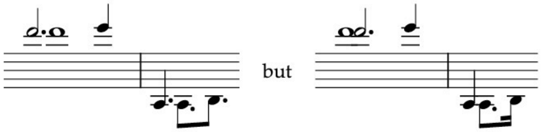
The first approach is to place the part without the dot first, to the left, so that the notes can close up. The reader infers that the dot applies to only the right-hand part, because otherwise the two parts would share the same notehead:



The other approach is to clarify that only one part is dotted by placing the dotted value first. Thus the dot separates the two noteheads:



On ledger lines: when the part placed first is dotted, separate the ledger lines. The ledger lines are not separated when only the second part takes a dot:



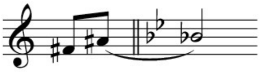
TIES

The function of a tie is to show the absence of rearticulation.

Tie design

The design of the tie, the curve and the gradation of the line, is a distinctive component of the appearance of the music.

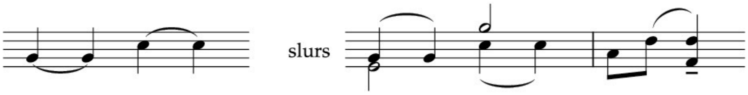
A tie is a tapered arc, symmetrical in shape, which extends between two noteheads of identical pitch. Two enharmonically equivalent pitches may also be joined by a tie:



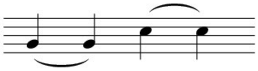
Square brackets should not be used as ties.

The tie and slur (phrase mark) have the same design, although ties tend to have a flatter arc, to allow room for slurs and to differentiate the two.

The tie extends from notehead to notehead: if one or both ends point to a stem, the arc becomes a slur:



The tie should almost touch each notehead. An arc further away from the noteheads may be taken for a slur:

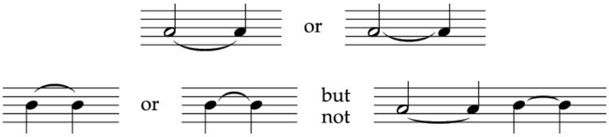


(See *Slurs*, p. 109.)

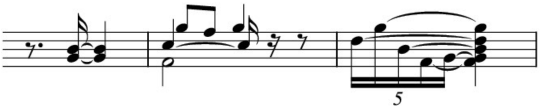
Curve of the tie

The curve of the tie should be sufficiently round to be conspicuous through a stave-line. Ideally, a shallow tie is 1–1½ stave-spaces deep.

The centre of the curve should not coincide with a stave-line, since the tie then becomes less conspicuous. This means that ties drawn within the stave will usually cut through a stave-line:

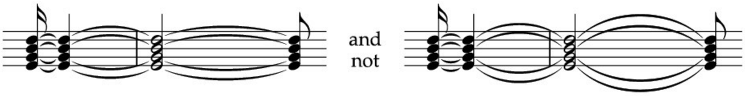


Ties are generally confined within one stave-space when they are very short, and when they must be flattened to avoid another part:



Should it be impossible to add a tie without obscuring a notehead, a tie may be divided (see example *Dividing ties*, p. 133).

The curve of a long tie is flattened to prevent excessively variable curve heights between ties:

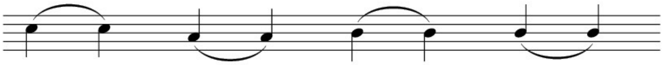


Note that when chords have stems with tails (as above), it is best to lengthen the stem to avoid tails and ties colliding.

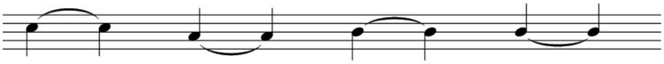
Positioning ends of tie relative to notehead

The exact position of the ends of a tie may vary according to surrounding notation.

Where there is plenty of space and no articulation to implement, the tie starts and finishes at the centre of the notehead:

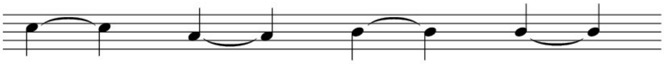


Where the tie needs to be brought closer to the notehead (e.g. to allow space for articulation), the ends of the tie align with the edge of the notehead:

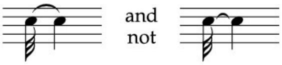


(See also *Placing articulation and slurs with ties*, below.)

The tie may start slightly after and finish slightly before the notehead. When notes are in spaces, this enables the ends of a tie to be brought into the same space as the notehead:

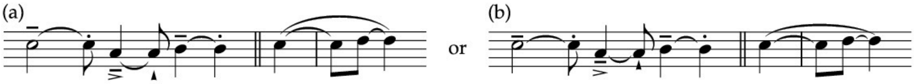


Such positioning is often necessary for tied chords (see *Placing ties on chords*, opposite). Make ties between tightly spaced notes as long as possible, in order to have them most conspicuous:



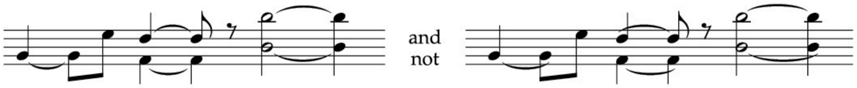
PLACING ARTICULATION AND SLURS WITH TIES

So that a tie does not collide with articulation or slurs, the ends of the tie align with the edge of the notehead (a) or else start slightly after and finish slightly before the notehead (b):



A TIE INTERSECTING A STEM

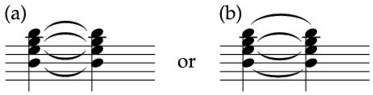
A tie intersects a stem only under exceptional circumstances, e.g. when two parts overlap (see *Overlapping parts*, p. 67). In all other circumstances the tie should fall short of the following stem:



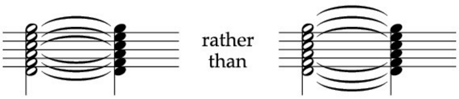
Placing ties on chords

MULTIPLE-NOTE CHORDS

Inner ties must start after and finish before each notehead. Outer ties may be drawn parallel to this, so that all ties are the same length (a). It is equally acceptable for the outer ties to be full length (b):

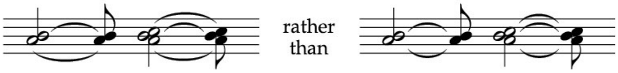


For close-position chords, it is best if ties start in the same stave-space as the notehead, so that they are clearly seen to be attached to the correct note:



ADJACENT-NOTE CHORDS

It is usually clearer to start each tie close to each notehead, rather than to align all ties after all notes:

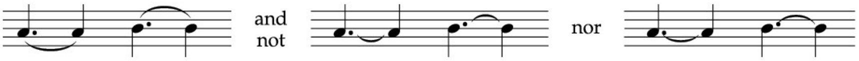


(See also *Tied unisons*, p. 69.)

Placing ties with dotted notes

SINGLE NOTES

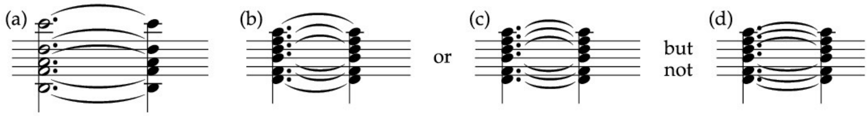
Place the dot within the tie – the tie does not follow the dot. Curve the tie sufficiently to avoid obscuring the dot:



CHORDS

Position ties so that no dot is obscured.

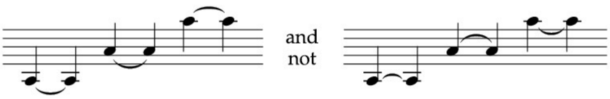
Ties may start immediately after each notehead, in between the duration dots, as long as they will fit without colliding: (a) and not (d). Otherwise inner ties should start after the dots (b). Ties for outer notes may follow the position of inner ties if preferred, but this may place these ties rather far from their noteheads (c):



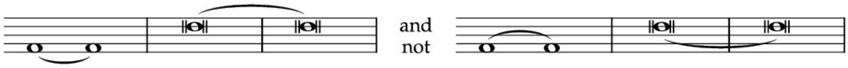
Tie direction for single notes

Stems in one direction

A tie curves away from the stems of the notes:

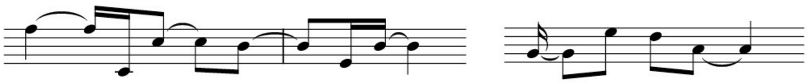


A tie between stemless notes behaves as if stems were present:

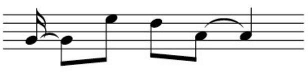


Consecutive stems in opposite directions

Ties curve away from the middle stave-line:



To curve all ties upwards for notes below the middle line, as some editions do, creates a collision between a tie and the tail of an up-stemmed first note:

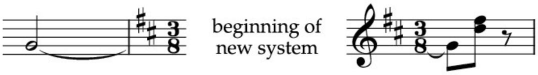


(However, this may be unavoidable in double-stemmed writing – see p. 67.)

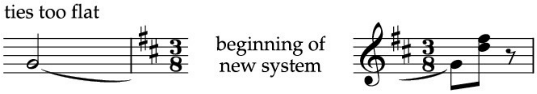
Ties over a system break

A tie stops short of the last barline of a system. At the start of a new system the tie begins after the clef, key signature and time signature.

Tie direction remains consistent over the system break and should not be altered when the notes on either side of it take opposite stem direction:



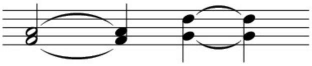
Over a system break, the open-ended tie keeps its symmetrical shape. This symmetrical curve ensures it is not mistaken for a slur nor a glissando line:



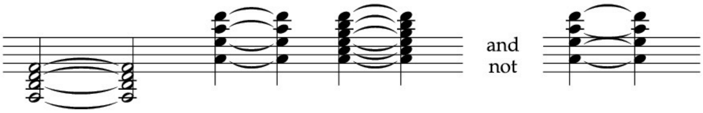
(See example *Slurs and ties over a system break*, p. 112.)

Tie direction on single-stemmed chords

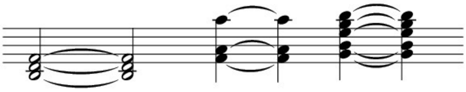
Two notes on a stem: the ties curve in opposite directions:



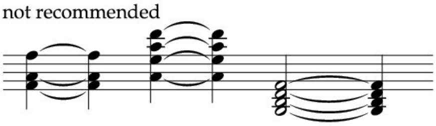
An even number of ties: equal numbers of ties curve in each direction:



An odd number of ties: the majority of ties curve away from the stem:



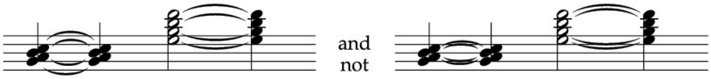
Some editions tie middle notes of both odd- and even-note chords according to their position on the stave. Ties for notes on and above the middle stave-line curve upwards, ties for notes below the middle line curve downwards:



(See also *Adjacent notes*, p. 66.)

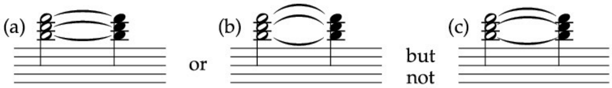
DISTANCE APART OF TIES

Place ties that are in the same direction a minimum of one stave-space apart. This applies to ties both on and outside the stave. One tie per stave-space prevents the ties from obscuring stave-lines or merging together:



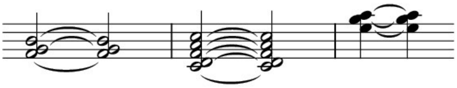
ON LEDGER LINES

Either flatten the ties (a) or move them horizontally further from the noteheads (b) in order to avoid them touching ledger lines (c):

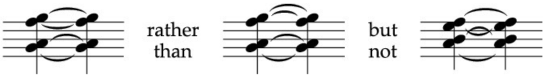


Adjacent notes

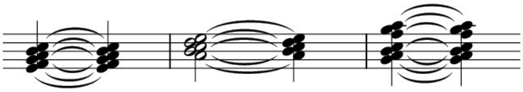
Adjacent-note ties are curved away from each other. This avoids two ties close together curving in the same direction. The adjacent notes dictate the direction of all other ties in the chord, overruling the usual tie-direction conventions for the rest of the chord:



Pairs of adjacent notes: each pair may take opposite tie directions as long as the middle ties do not collide nor overlap:

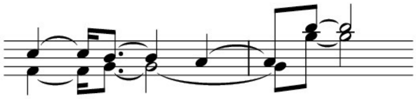


Consecutive adjacent notes: curve parallel ties in both directions away from the middle of the chord. Position the ties outwards from the centre of the chord, one per stave-space. Each tied note must have a tie; therefore the ties at the edges of the chord will be progressively further away vertically from the notes to which they refer:

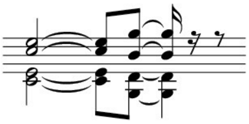


Tie direction in double-stemmed writing

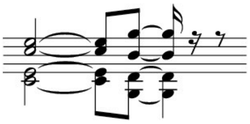
The upper part takes upward-curving ties, the lower part downward-curving ties:



This applies to all the notes on one stem:

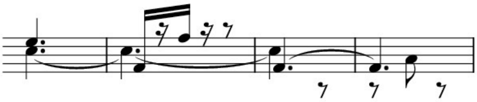


and not

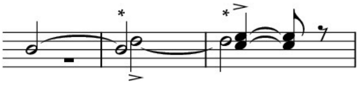


Overlapping parts

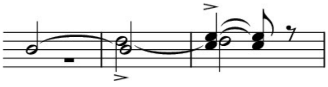
One part tied: when the parts are not tied simultaneously, the ties curve towards their stems as normal:



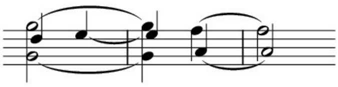
Where possible, place the parts so that a stem does not come between a note and its tie. This may involve reversing the usual arrangement of parts (marked *):



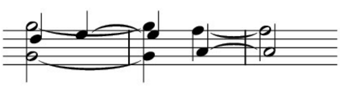
rather than



Both parts tied: ties may curve away from their stems if necessary, so that they are clear of each other:

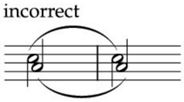


and not

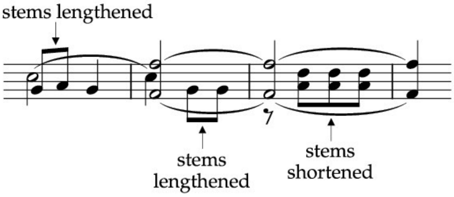


One tie should never intersect another, since this is visually confusing: either reverse normal tie direction (as above) or else divide up the tie (see first example under *With ledger lines*, p. 68).

Note that the tie may cut through the stem of the other part (as in the previous example), rather than curve a long way from the notehead, which makes the tie look too similar to a slur:



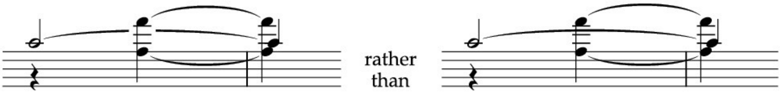
A stem should not end at the point it meets the tie. Either shorten or lengthen the stem. A tie may cut through the stems of a beamed group as long as the tie is sufficiently curved and does not look like another beam (bars 1–2):



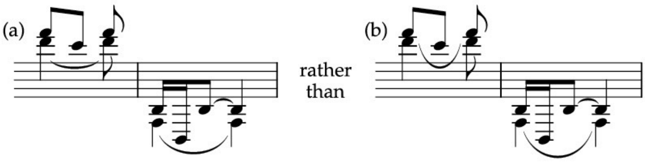
(See also extract from Carter's *Syringa*, p. 382.)

WITH LEDGER LINES

A tie should not pass between ledger lines. A tie by nature should be kept as flat as possible, to distinguish it from a slur. Therefore it is sometimes clearest to break the tie:



When a tie is not required to overlap with another, it is clearest not to break it. It may be moved further from the notes while being kept reasonably flat (a). When the curve of the tie is too rounded, it looks too much like a slur (b):



Whether or not the parts overlap, never allow a tie to intersect the other part's ledger lines (see first example on p. 306, (b)).

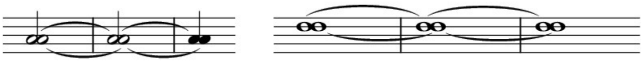
Tied unisons

Single stems

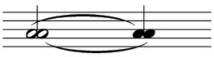
PERFECT UNISONS

Each notehead requires its own tie.

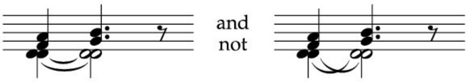
The ties should point to and from each notehead, with the upper tie for the note on the left and the lower tie for the note on the right:



A stem should not intersect a tie:

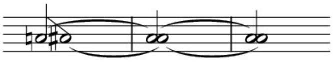


Ties must not overlap nor cross; it is better to point the ties to the 'wrong' notehead:



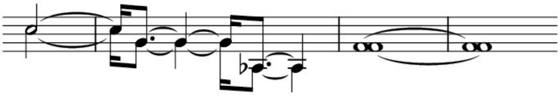
ALTERED UNISONS

Each tie should be drawn between its own noteheads:

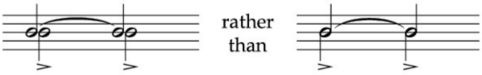


Double stems

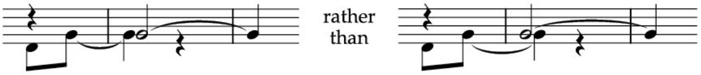
Each part must have its own tie, even though there is only one notehead and one duration dot:



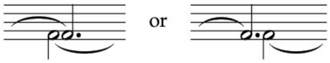
A single tie indicates that only one part is tied; however, when this is the case, it is clearest to use two noteheads:



When the parts have different durations, it is acceptable to reverse the order of noteheads so that a notehead can be nearer its tie:

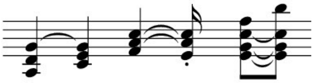


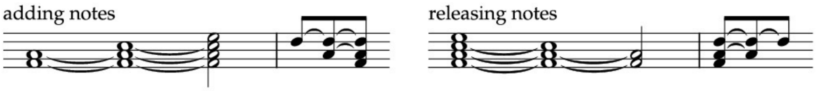
When one part is also dotted, the part with the dot may go to the right, so that the notes can close up:



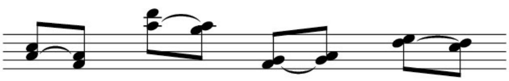
Tie direction for single-stemmed moving chords

For clarity, a moving part usually takes a separate stem, but where this is not possible, tied and untied notes may appear on the same stem. To draw attention to a note-change in a chord, curve ties away from an added or released note:

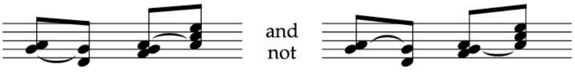




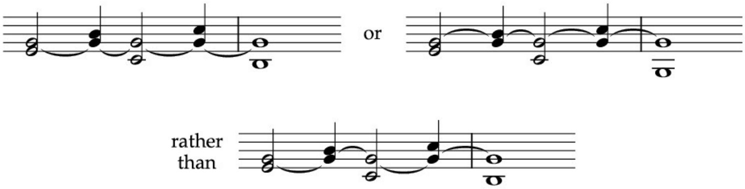
When one note is added whilst another is released on alternate sides of a tied note, obviously the tie direction cannot be curved away from both. Usually the tie is curved away from a note added for the second chord:



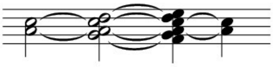
The tie can be reversed away from the added note if it would otherwise be unclear which note was tied:



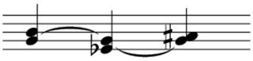
A passage of such chords looks clearest when all ties are placed in one direction:



Ties are placed conventionally when notes are added or released simultaneously above and below the tied note:

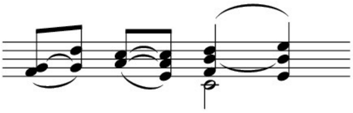


Curve a tie away from an added note with an accidental, so that the two do not collide:



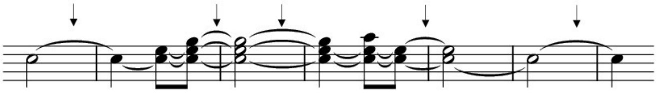
WITH SLURS

When a slur connects chords, place ties and slurs in opposite directions so as to be clearly distinguishable from one another:



CHORDS TIED WITHOUT A CHANGE OF PITCH

The ties for unchanging chords revert to their conventional positions (marked ↓):

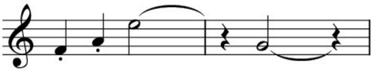


(To position ties between staves in keyboard writing, see *Ties between staves*, p. 308; see also *Arpeggiated chords notated as consecutive pitches*, p. 133; for use of ties with tremolos, see *Ties*, p. 225.)

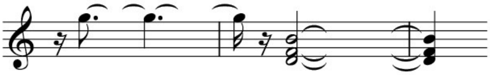
Open ties

A short, open (or 'incomplete') tie is used to show that a note is sustained beyond its written duration. This is also indicated *laissez vibrer* (see below).

A long tie extending to a rest or barline indicates that a note should be held for its full length:



A short open-ended tie extending from the notehead is used in some French editions to replace the longer complete tie. This should not be used, as it does not show the progression of the tied note sufficiently clearly:



Such ties should be used only where no other solution is practical (see Janáček extract, p. 550).

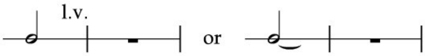
Laissez vibrer

(French, 'leave to vibrate', Italian: *lasciar vibrare*; abbrev. *l.v.*)

This is an instruction not to damp an instrument that has natural sustaining resonance. The instruction applies to sounds that are sustained naturally by an instrument, not held manually, and which are not to be damped until indicated (if at all).

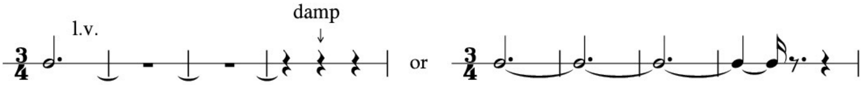
The instruction *l.v. sempre* specifies that no notes in a passage are to be damped.

The initial note is best written as a single note-value, as this is easiest to read; *l.v.* is written after the note. This may be accompanied by an open tie, although *l.v.* or a tie alone is sufficient:



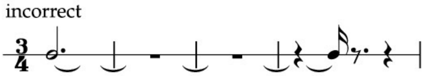
The instruction *l.v. al niente* indicates that the sound should be allowed to die away to nothing.

When a sound is to be damped later on, the continuing resonance is indicated with open ties over or after subsequent barlines (but see also *Notes sustained with a pedal*, opposite). Add rests to make up the value of incomplete bars (see bar 4). Rests may be omitted for whole bars, but are best added for completeness:



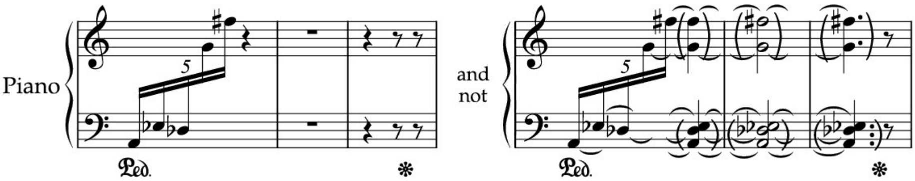
Rests may be divided up to show a damping or pedal release point in the middle of a bar (as above).

It is better not to indicate the termination (release) point with a tied note-value, unless all durations are written in full, since at a quick glance it may look as if the sound should be re-articulated:



NOTES SUSTAINED WITH A PEDAL

Instruments that can sustain notes with pedals (piano, celesta, vibraphone) do not require *l.v.* ties for notes that are sustained in this way, since pedal markings must be indicated in any case. Once a note is struck, the sound will be sustained until the pedal is released. Continued notation of the sustained notes for the duration of the pedal is unnecessarily complicated:



(For exceptions in piano writing, see *Notes sustained with a pedal*, p. 337; for *l.v.* percussion notation, see *Long-reverberating instruments*, p. 289; for harp, see *Laissez vibrer*, p. 363; for guitar, see *Sustaining and damping*, p. 383.)

3

Accidentals and Key Signatures

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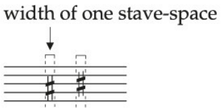
ACCIDENTALS

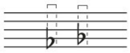
The first section below describes the standard accidental symbols in detail so as to show their required proportion to the stave and their placing on it. This is critical: the slightest vertical displacement of an accidental will cause confusion, as note and accidental will appear to refer to different pitches. Accidentals that are too small are difficult to read as they start to look alike from a distance or in bad light.

Design

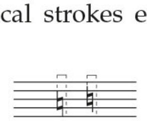
The sharp: the crossbars are slightly thinner than the depth of a beam. They are parallel, each slightly angled, so that when the sharp is placed in a stave-space, the top left of each crossbar hangs from the line, the bottom right sits on the line. The width of the sharp symbol is one stave-space or a little more. The vertical strokes are about half a stave-space apart. They extend just less than one stave-space each side of the crossbar. The right stroke is set higher than the left, to follow the angle of the crossbars:



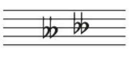
The flat: the vertical stem is about 2½ stave-spaces long. The width of the bowl is slightly less than one stave-space and in depth should fill a stave-space when positioned in one:



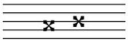
The natural: the crossbars are the same thickness as those of the sharp. When a natural sits in a stave-space, the crossbars intersect the stave-lines in the same way as the crossbars of a sharp. The natural is slightly less than one stave-space wide. Its vertical strokes extend one stave-space beyond the crossbars:



The double flat: the two flat signs are placed together and (usually) touching:



The double sharp: this is a stylized cross, a stave-space in width and height:

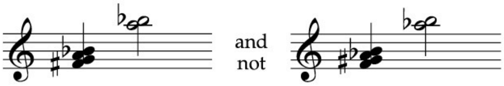


An accidental is scaled down in size only when placed before a grace note (see *Design*, p. 125), or a cue note (see *Cue notation*, p. 569).

Placing

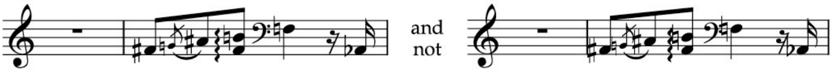
ON THE STAVE

The central portion of an accidental symbol must precisely fill a stave-space, or be centred on a line. Take great care when assigning accidentals to notes on ledger lines – without the guidance of the stave it is easy to place an accidental ambiguously:



PROXIMITY TO NOTES

An accidental should be as close as possible to the note it precedes. Allow sufficient space to ensure that an accidental does not collide with a symbol that precedes it, or it will become illegible:



(See *Spacing symbols*, p. 41.)

Using accidentals

Changes of clef, octave and stave

An accidental holds good for the duration of a bar. It applies only to the pitch at which it is written: each additional octave requires a further accidental.

CLEF CHANGES

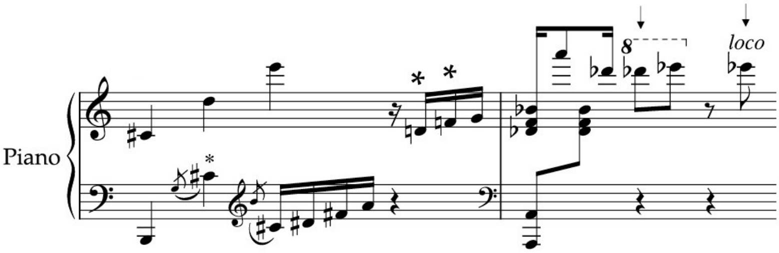
An accidental holds good only in the clef in which it is written. A change of clef requires a further accidental for a note of the same pitch (see the following example, bar 1, third beat, left hand).

OCTAVE CHANGES

Repeat an accidental if sounding at a different octave, even when the same pitch is used with an octave sign – the location of the changed octave is likely to be different (see example below, bar 2, at ↓).

TWO OR MORE STAVES FOR ONE PLAYER

An accidental holds good only for the stave in which it is written. It should be confirmed (see ⁎) or cancelled (✱) when it occurs in another stave in the same bar. When a note with an accidental is taken with the other hand in the same stave, the accidental holds good (bar 2, left hand) and does not need to be repeated.

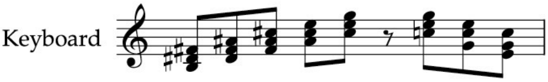


Accidentals relevant to more than one part on a stave

The following conventions apply irrespectively of whether individual parts are stemmed separately or together.

SINGLE-INSTRUMENT PART

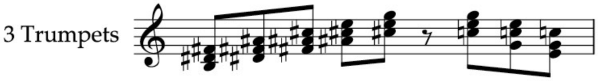
An accidental applies to all parts on a stave – it is not repeated for each separate part in a given bar. Similarly, a cancelled accidental applies to the same pitch in any of the parts:



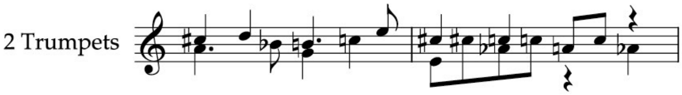
PART FOR TWO OR MORE PERFORMERS

Choral music and orchestral parts often double up two (or more) parts on one stave in a score. For clarity, confirm or cancel each accidental in every part. This guarantees that essential accidentals are not omitted when instrumental parts are extracted, or when different voices read from a single stave in a vocal score.

Place an accidental for each affected part in turn, even if the same pitch appears consecutively in different parts:

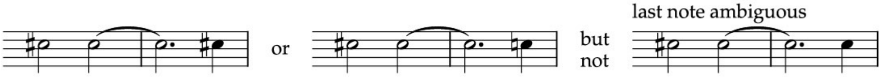


An accidental that holds good in one part must be restated later in the bar if it has, in the meantime, been altered by another part:



Accidentals tied over a barline

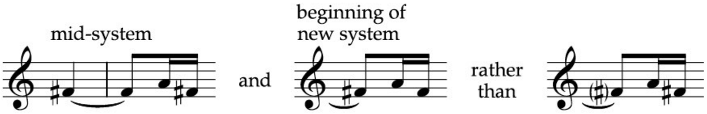
An accidental holds good over a barline only for the duration of a tied note. A repeated pitch in the following bar must have an accidental:



OVER A SYSTEM BREAK

It is helpful to repeat an accidental on a tied note at the beginning of a new system so that the reader does not have to look back to a previous system to confirm the pitch. The tied accidental may be enclosed in brackets, although brackets may decrease the legibility of the accidental. For music with many tied chords, it is often better not to repeat accidentals, as they congest the beginning of the system.

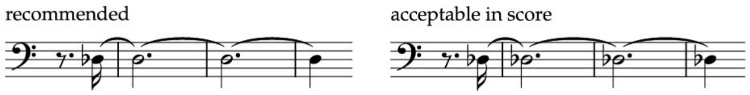
If the accidental for the tied note is without brackets, a repeat of the pitch later in the bar does not require confirmation. This notation is preferable to repeating an accidental twice in a bar in close succession:



REPEATING TIED ACCIDENTALS AFTER EVERY BARLINE

This practice has been used to facilitate vertical reading in a score. However, it burdens the score with many extra accidentals and is not recommended.

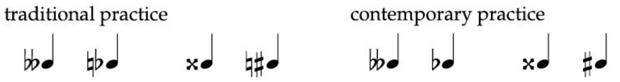
Such practice should never be transferred to a part to be played or sung from, since the eye is triggered for action by the presentation of a new accidental. A tied note looks as if it should be re-articulated and the tie appears to be a slur:



Cancelling accidentals

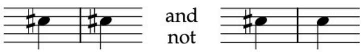
DOUBLE FLATS AND DOUBLE SHARPS

When a double flat is cancelled by a single flat, and a double sharp by a single sharp, the traditional practice of placing a natural sign before these is redundant, since a single flat or sharp sign cannot mean anything else:



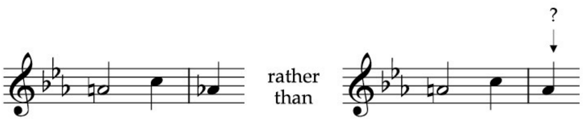
AFTER THE BARLINE

The barline cancels an altered pitch. However, it is essential either to restate or cancel the accidental when the repeated pitch recurs immediately after the barline:

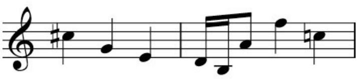


Otherwise the note after the barline should theoretically be a natural, but, in the absence of a natural sign, the reader will question whether the second bar has a missing sharp sign.

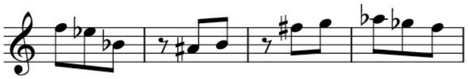
This practice holds good even when a key signature corrects the accidental:



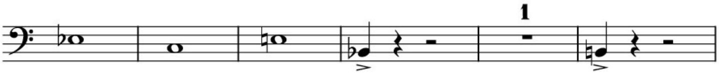
It is good practice to cancel an accidental in any part of the following bar:



except where there is an enharmonic change that makes such accidentals redundant:



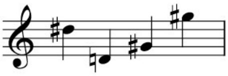
In performance material, further accidentals may be added to a pitch that recurs within a few bars, to help avoid mistakes in reading:



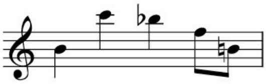
(See also *Cautionary accidentals*, below.)

OCTAVE DISPLACEMENT

A pitch that occurs at a different octave should be confirmed or altered with an accidental:



When returning to a pitch after alteration at a different octave, confirm the original pitch with an accidental, to avoid ambiguity:



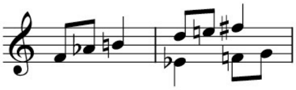
Cautionary accidentals

An accidental that is repeated later in a bar, even though it is not strictly necessary, is called a 'cautionary' (or 'reminder' or 'courtesy') accidental. Cautionary accidentals confirm the pitch of a note that might otherwise be questioned (see next paragraph). Atonal and highly chromatic idioms should include cautionary accidentals to assist accurate reading.

USES

Cautionary accidentals confirm whether an accidental earlier in the bar still holds good or not. In rehearsal or performance, the musician may not have time to look back through a long, highly chromatic bar to confirm whether a pitch has been altered by intervening accidentals.

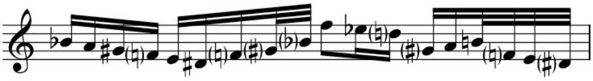
Cautionary accidentals should confirm that diminished and augmented intervals are intentional:



They may also confirm that a dissonance with a player seated close by is correct. (An orchestral player will not normally have access to a full score to check this.) In vocal music, the singer should be alerted to all close dissonances (e.g. semitone intervals) between voices or with the accompaniment.

PLACING CAUTIONARY ACCIDENTALS

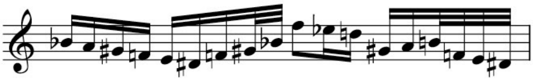
According to traditional practice, such accidentals are placed in brackets, to confirm that they are not strictly essential. This approach also clarifies that there is not a previously missing accidental in the bar:



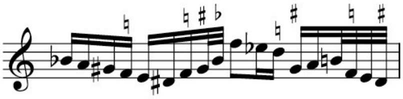
However, since many bracketed accidentals (as in the example above) reduce overall legibility, the use of brackets is feasible only when there are just a few cautionary accidentals.

On a chord, each accidental takes a separate pair of brackets.

Brackets force extra horizontal space between the accidental and the surrounding notes, which interrupts consistent note-spacing. It is therefore better either to write all accidentals without brackets:



or, where horizontal space is limited, to place cautionary (but not essential) accidentals directly above their notes:

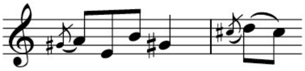


Square brackets around accidentals should be used only to indicate editorial additions in practical or scholarly editions. Editorial additions may, alternatively, be given as small-sized accidentals above their notes (in the manner illustrated above).

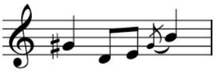
When highly chromatic music requires many cautionary accidentals to be used, it is always helpful to explain the accidental practice in the preface: e.g. 'accidentals apply through the bar, but are repeated for ease of reading'. Otherwise performers may query whether an accidental applies only to the note it precedes (see *Accidental systems*, p. 86).

Accidentals affecting grace notes

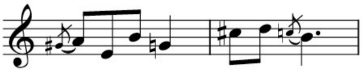
Accidentals hold good equally for grace notes and for measured notes. However, unless the measured note follows the grace note almost immediately (bar 2), for safety it is best to repeat an accidental for a measured note:



An accidental for a measured note is always deemed to hold good for a subsequent grace note:

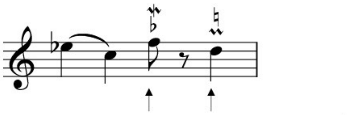


A grace-note accidental is cancelled for a subsequent measured note (bar 1), and a full-sized accidental is cancelled for a subsequent grace note (bar 2):



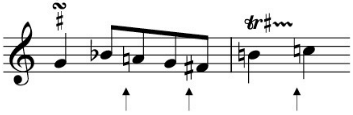
Accidentals affecting ornaments

An altered pitch should be confirmed or cancelled for an ornament later in the bar. Place an accidental for an upper note above the ornament, below for a lower note:



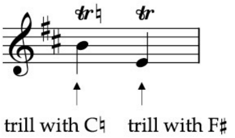
E♭ confirmed E♭ cancelled by ♮

An accidental indicated for an ornament should be confirmed or cancelled when the pitch is reiterated later in the bar as a measured note:



A♭ of turn cancelled
F♯ of turn confirmed
C♯ trilling note cancelled

A key signature modifies the pitch of an ornament. To overrule a key signature an ornament requires an accidental:



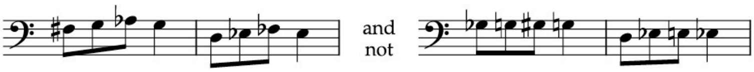
(See also *Trilling note*, p. 138.)

Using accidentals in an atonal context

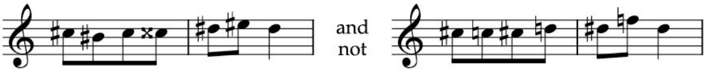
Note-spelling

Notes are easiest to read and to pitch when they are spelled according to the following conventions, whether or not the music has a tonal context.

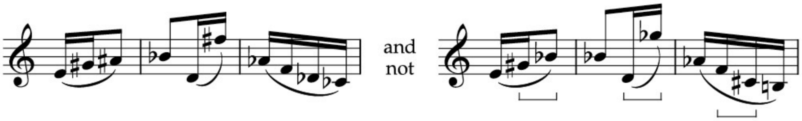
- Use the most familiar intervals – perfect, minor and major – rather than augmented and diminished intervals
- Chromatic-scale figures use sharps to ascend, flats to descend
- Spell stepwise figures as a scale, i.e. as adjacent pitch letters:



There is no reason to leave out double sharps and double flats if they clarify the harmonic sense:



Avoid enharmonic-spelling changes in the middle of a phrase where possible, since the awkward intervals this creates (marked ⌴) are more difficult to read quickly:



(See also *Enharmonic spelling*: in vocal music, p. 437; for instrumental parts, p. 581; for transposing parts, p. 253; for an orchestral reduction, see p. 553; for a choral reduction, see p. 476.)

Accidental systems

The traditional system of accidental use (as described in *Using accidentals*, p. 78) has been considered inadequate in certain contexts and replaced accordingly.

In densely chromatic idioms, unbarred and unmetred music, a reader might well expect an unconventional accidental system to be implemented. To avoid ambiguity in such cases it is a good idea to state in a preface when using traditional practice, e.g. 'accidentals hold good throughout the bar'.

AN ACCIDENTAL TO EVERY PITCH

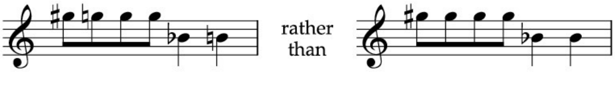
This system was first adopted by composers of the Second Viennese School, for the specific intellectual reason that a note with an accidental was not simply an inflected version of a natural note but a pitch of equal status. The system also means that there is no opportunity to misread a pitch. In densely chromatic music – especially keyboard music – the system can be very helpful so as to keep track of accidentals within a bar.

When the system first came about, performers would have needed more assistance with the unfamiliar atonal medium. However, music so dense with accidentals looks forbiddingly difficult, and therefore reduces overall legibility (see Kurtág extract, p. 425). Furthermore, there is no longer the necessity to make the original intellectual point.

AN ACCIDENTAL APPLIES ONLY TO THE NOTE IT PRECEDES

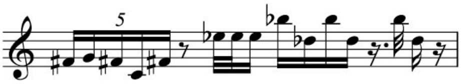
Adopt this system only when there is sufficient time for performers to learn the music in advance – it is not recommended when there is minimal rehearsal time.

This system uses only sharp and flat signs, if strictly implemented, since a note without an accidental is a 'natural' pitch. Thus music with few black notes is much less cluttered by accidentals. It is advisable, however, to add a natural sign (if applicable) for an altered immediately repeated note, for safety:

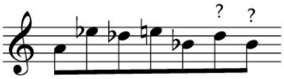


(See also Lutosławski extract, p. 613.)

The system can be modified, so that an accidental applies only to the note it precedes except in the case of an immediately repeated note or pattern of pitches, and notes joined by a beam. The extent of a 'repeated pattern of pitches' must always be clear: if in doubt, repeat accidentals. In the following example, it is unclear whether the last beat is a repeated pattern or whether the notes should be 'natural' pitches:



It is absolutely essential that an unconventional system is used consistently. Inconsistently cancelling accidentals causes ambiguity. To state 'accidentals apply to the note alone' for the following notation is misleading:



The natural to the E throws the pitch of the second D and B into question.

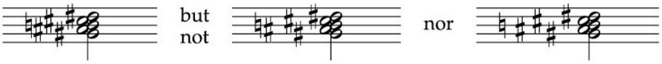
MUSIC WITHOUT BARLINES AND *AD LIBITUM* PASSAGES

In music without barlines, free passages and long cadenza bars there is no opportunity for barlines to cancel accidentals. Instead, use an accidental to apply to the note it precedes, to an immediately repeated note and within a beamed group. An accidental is repeated for subsequent notes, but cancelled only on immediately or closely following repeated notes (see example *Extract for strings*, p. 610). Add more accidentals to confirm pitches if necessary.

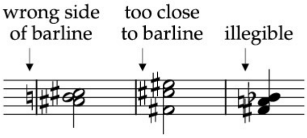
Arranging accidentals for chords

There is no hierarchical necessity to arrange accidentals in groups of sharps, naturals and flats. Rather, their order is determined by their position on the stave.

Place all accidentals as close as possible to the notes they precede, evenly spaced, but not too far apart:



All accidentals must be to the right of a barline. If they are bunched up and colliding with each other or with a barline, they will not be legible:



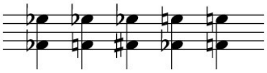
Two-note chords

The following rules are designed to give as compact an arrangement of accidentals as possible.

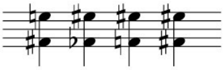
Pairs of accidentals an octave or more apart vertically align. Depending upon the exact length of the accidental symbol, accidentals a seventh and sixth apart can align as long as they do not collide or join up.

ACCIDENTALS A SEVENTH APART

Most combinations of accidentals a seventh apart can align without touching:

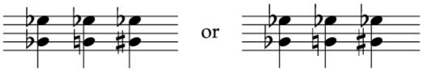


Otherwise slightly offset the lower accidental to the left:

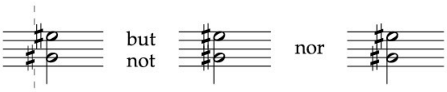


ACCIDENTALS A SIXTH APART

When the upper note is a flat, accidentals can usually align. Otherwise the lower accidental is offset:

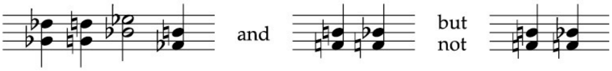


When the upper note is a sharp or natural, slightly offset the lower accidental so that the vertical strokes do not join up. The closest that two sharps may be placed together is so that the edges of their crossbars align vertically. The sharps cannot overlap, as the vertical strokes would join up:



ACCIDENTALS A FIFTH OR LESS APART

The higher accidental goes closest to the chord, the lower one is offset to the left. Flat and natural signs a fourth or fifth apart may overlap as long as they do not join up:

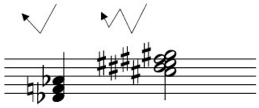


Chords of three or more notes

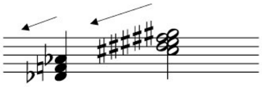
CLOSE-POSITION CHORDS

Alternate the highest and lowest accidentals so as to allow a group of accidentals to be as compact as possible.

Place the highest accidental closest to the chord, followed by the lowest, moving left from the chord and alternating the highest and lowest of the remainder:



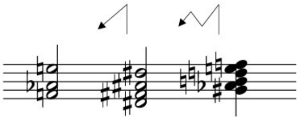
To place accidentals in descending order away from the chord (as seen in some editions) takes up more room, as each accidental needs fractionally more space to be clear of its neighbour:



not recommended

CHORDS SPANNING A SEVENTH OR MORE

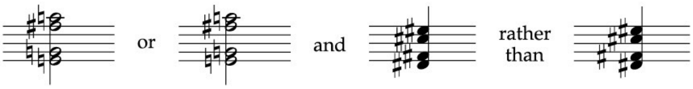
Align the accidentals for the outer notes closest to the chord. Offset further accidentals to the left, starting with the remaining highest, and alternating the highest and lowest, as in *Close-position chords*, above:



(See also *Chords with adjacent notes*, p. 90.)

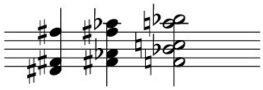
WIDELY SPACED CHORDS OF FOUR OR MORE NOTES

When there are two overlapping sevenths, or wider intervals, align pairs of accidentals, as this takes up the least space:



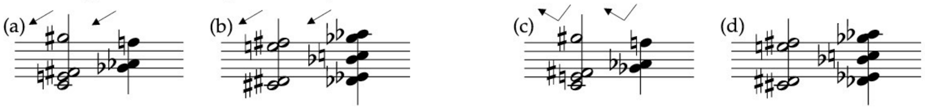
OCTAVE ACCIDENTALS

These are easiest to read when they align. Other accidentals may be offset to the left to allow for this:



Chords with adjacent notes

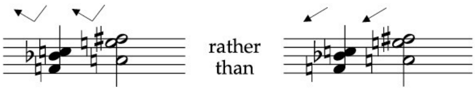
It is visually helpful to place accidentals for adjacent notes in descending order, right to left, away from the chord, to reflect the arrangement of notes. This is especially helpful for pairs of adjacent notes (b). It is also acceptable to follow the conventional order of accidentals ((c) and (d)), as described above:



recommended layout (accidentals reflecting direction of adjacent notes)

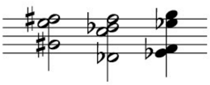
acceptable layout (outer-note accidentals closest to chord)

When there are several accidentals for a close-position chord, it is better to use the conventional arrangement, as the descending order of accidentals requires more space:



DOWN-STEMS

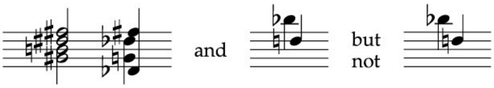
Move an accidental closer to the stem than a displaced note wherever there is room. This includes octave accidentals:



Accidentals in double-stemmed writing

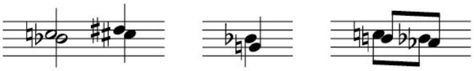
Place accidentals before both parts, except for altered unisons (see opposite; see also *Altered unisons*, p. 50, and *In a note cluster*, p. 51).

The order of accidentals is the same as for single-stemmed chords, starting with the uppermost accidental closest to the notes:



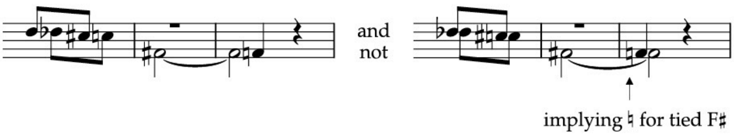
ADJACENT NOTES AND OVERLAPPING PARTS

When the higher-pitched note is to the left of the two parts, the order of accidentals may be reversed to reflect the arrangement of notes. Thus each accidental is as close as possible to its note:



ALTERED UNISONS

Place each accidental beside each part so that it is clear which accidental belongs to which part:



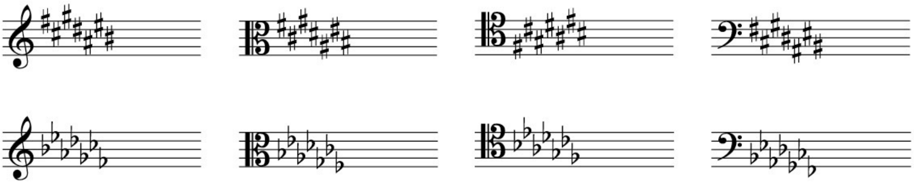
(If the upper note in bar 3 above joined to a unison note with the lower part, it would require a sharp sign placed before both notes.)

KEY SIGNATURES

Placing and order of accidentals

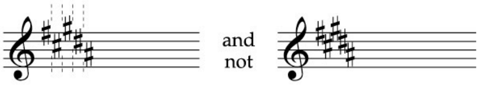
A key signature is placed at the beginning of the stave, after the clef and before a time signature. It should appear on every stave to which it is relevant, for as long as it is relevant.

The order of accidentals follows the ‘cycle of fifths’. The arrangement is identical in each clef except for the tenor-clef layout of sharps:

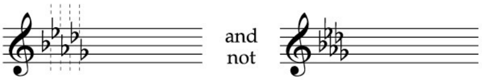


Spacing

Sharps: the edges of the crossbars align vertically but do not overlap:



Flats: place each sign just far enough to the right for it not to touch the preceding flat. Flats in ascending fourths will fit in very close to each other – but keep the key signature evenly spaced, the stem of a second flat aligning with the right-hand edge of the previous flat. Do not overlap the flats, as the spacing will appear uneven:

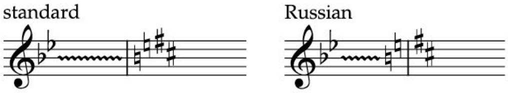


Key changes

Change a key signature after a barline. A double barline precedes the new key signature only if the key change coincides with a new musical section.

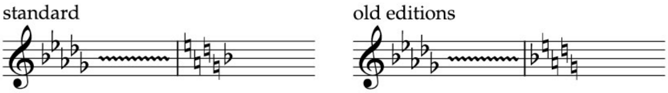
TRADITIONAL PRACTICE

Natural signs cancel a key signature before a new one is stated. The naturals should appear in the order of the key signature they are cancelling. Both the naturals and the new key signature go after the barline (old Russian editions place the naturals before the barline):


standard

Russian

When a sharp or flat key leads to a key with fewer sharps or flats, the accidentals of the previous key signature are cancelled before the new key signature. However, some older editions (including nineteenth-century French editions) place the naturals after the new signature, to preserve the 'cycle of fifths' arrangement:

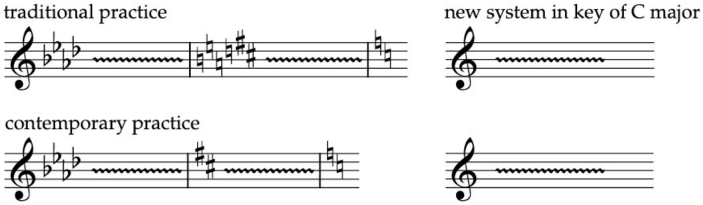

standard

old editions

When a key change coincides with a system break, the cancelling naturals and the new key signature go at the end of the first system. The new system takes only the new key signature (see following example).

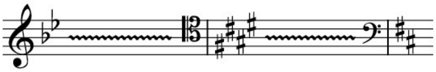
CONTEMPORARY PRACTICE

At a key change use only the new key signature. This gives a simpler result. A previous key signature requires cancelling with naturals only when the new section has no key signature:



Simultaneous key and clef change

Place the new clef before the barline, the new key signature after the barline (and in the new clef):



Key signatures in non-tonal or polytonal music

Key signatures may be used to minimize repeated accidentals in any passage or movement that consistently uses the same accidental pitches.

CONVENTIONAL KEY SIGNATURES

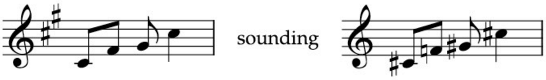
In an ensemble work, an instrument may take its own key signature. (Stravinsky makes use of key signatures for individual instruments or selected sections of the orchestra in works such as *L'Oiseau de Feu*, *Chant du Rossignol*, and *Jeu de Cartes*. Holst also does so in *The Planets*.)

Harp music is written enharmonically according to its pedal settings and may use a completely different or enharmonically equivalent key to the rest of the ensemble (see *Key signatures*, p. 354).

An instrument on two (or more) staves can take an individual key signature for each stave. (Bartók employs this frequently, e.g. in 14 Bagatelles, op. 6; see also Cowell extract, p. 326.)

UNCONVENTIONAL KEY SIGNATURES

Any sharp or flat may be selected as a key signature to alter all octaves of the selected pitches:



(Bartók uses many unconventional key signatures in the *Mikrokosmos* piano pieces.)

MICROTONES

No pitches other than the twelve chromatic degrees of the octave have standard notation. Symbols for any other pitches require a written definition. Arrows are a very convenient and logical symbol to show the raising and lowering of pitch.

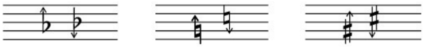
Quarter-tones

Either arrows or fixed symbols (see p. 96) are used to define quarter-tones (hereafter ¼-tones).

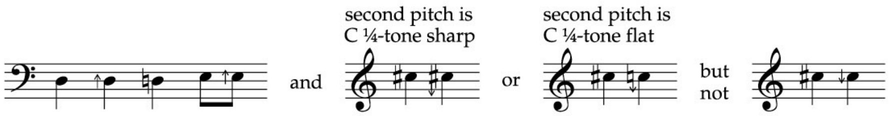
Using arrows

An arrow can be attached to any accidental, or precede a note or accidental, pointing in the direction of the pitch modification. This is visually the most helpful symbol since it requires no memorizing.

The recommended symbol is an arrow attached to an accidental. Ensure that the arrowhead is sufficiently large to be visible on the stave. It is most convenient to attach the arrowhead to the sharp-sign verticals that project furthest from the centre of the symbol:



An arrow alone without an accidental may represent a pitch alteration (see first example below). However, when a conventional accidental precedes the microtone for the same pitch in the bar, an accidental must confirm or cancel the altered microtonal pitch:

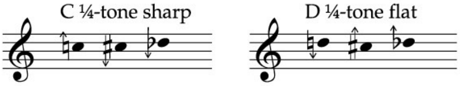

second pitch is
C ¼-tone sharp
second pitch is
C ¼-tone flat
and
or
but
not

Arrows defining all quarter-tones

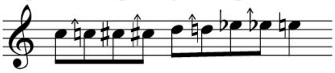
↑ = sharpen by a ¼-tone
↓ = flatten by a ¼-tone

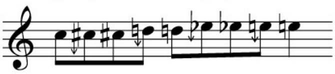
Arrows can be attached to any accidental. This has the advantage of making all enharmonic equivalents available.

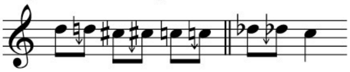
The following example shows enharmonic equivalents for each ¼-tone pitch:

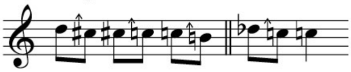

C ¼-tone sharp
D ¼-tone flat

Thus ↑ can always be used in a sharpening context, ↓ always in a flattening context:

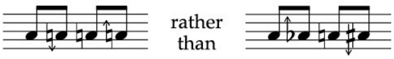

stepwise sharpening: use upward arrows


and not downward arrows


stepwise flattening: use downward arrows

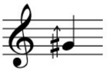

and not upward arrows

The correct enharmonic equivalents make reading much easier:

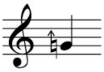

rather
than

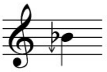
(See also *Note-spelling*, p. 85.)

There can be confusion as to whether an arrow defines an accidental as a ¼-tone or ¾-tone sharp or flat. The arrow modifies the given accidental by a ¼-tone in the direction of the arrow:

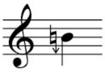


a ¼-tone sharper than G♯,
not G ¼-tone sharp, which would be





a ¼-tone flatter than B♭,
not B ¼-tone flat, which would be



Using fixed symbols

The following are 'fixed symbols' in that they cannot modify a conventional accidental – as arrows can. They are useful to define ¼-tones should arrows be used to define another microtone in the same piece (see *Other microtones*, below).

The most commonly used symbols are:

¼-tone sharp	¾-tone sharp	¼-tone flat	¾-tone flat
† or 𝄲	𝄰	𝄳	𝄳♭

The sharp symbols are especially easy to memorize as they look exactly like the degrees of sharpening that they represent. Signs used for a ¼-tone flat that should be avoided are: ɭ and ♭ɭ, ◗ and ♭◗ since these symbols are too similar to the flat sign. It is recommended that all four of the above fixed symbols are used (rather than exclusively sharp symbols, for instance) so that sharp symbols can be used in 'sharpening' contexts and flat symbols in 'flattening' ones.

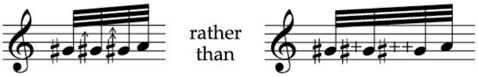
Other microtones

Since there are no standard symbols, individual ones must be created for microtones other than ¼-tones.

The best symbols are those designed to be placed in front of a pitch, as this is the conventional position for accidentals – and not above the note. (Numerals to define microtones placed above the stave can look like fingering, and arrows above a stave appear to indicate playing direction of arpeggiated chords for stringed instruments.)

The most successful symbols are modified conventional accidentals, since such signs are immediately recognizable as pitch adjustment. Use arrows in the first instance (see *Arrow definition*, opposite).

Symbols should be as compact as possible. The further the symbol is from the note, the more difficult the pitch is to read. Wide symbols force short durations apart, which is unhelpful:

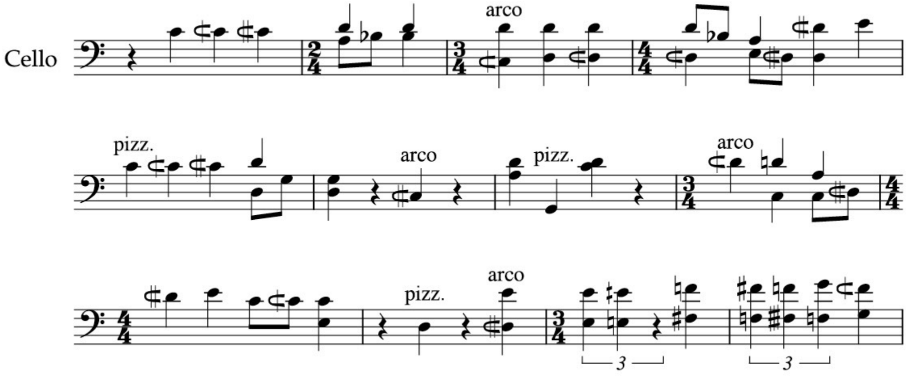


(In this example, ↑ and + might be defined as, say, 'raise pitch by a sixth of a tone', double symbols as 'raise pitch by a third of a tone'.)

Where possible, symbols should be attached to an accidental. Otherwise they may precede or supersede an accidental (but always in front of the note).

Make symbols as simple as possible so that they are legible on the stave. They should be easily distinguishable from other accidentals and from each other. For example, in *Medea-senecae*, the ⅓-tone symbols that Xenakis uses: ¢ = ⅓-tone higher, ₵ = ⅔-tone higher, contrast well with the ¼-tone notation 𝄲 and ♯ (¾-tone).

Xenakis: *Medea-senecae*



Arrow definition

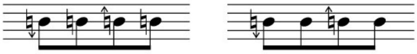
An arrow may be used to notate microtones other than the ¼-tone. The pitch modification of the arrow must always be defined. Arrows will represent one of the following definitions:

- Modify the pitch by a single given interval (e.g. of ⅓-, ⅕-, ⅙-tone, etc.)
- Modify the pitch within a given interval (e.g. by up to ¼-tone; between ⅛ and ¼-tone)
- Modify the pitch slightly

Arrows should have one meaning only in a piece. Introduce a second symbol if there are two different divisions of the tone (e.g. ⅓- and ¼-tones).

Cancelling microtonal alteration

If using conventional accidental practice, an ordinary accidental must cancel a microtone (the second and fourth notes in the second example remain microtonally altered):



(For notation in woodwind and brass, see *Microtones*, p. 247.)

4

Dynamics and Articulation

DYNAMICS 101

ARTICULATION 109

Slurs 109

Articulation marks 114

DYNAMICS

Typography

All wording referring to dynamics uses an italic typeface. A stylized bold italic gives symbols ***p***, ***f***, ***m***, ***s*** and ***z*** an individual and weighty appearance. No other text with the music should be as conspicuous. Relative to the stave, the ***f*** is 2½ stave-spaces high, the ***p*** is 2 spaces. The ***m*** (as in *mezzo*), ***s*** and ***z*** (as in ***sf*** and ***fz***) are the height of a stave-space. Other wording for dynamics such as *cresc.*, *dim.*, *sempre*, is the same size and should use lower-case italic but never a bold typeface.

General conventions for placing dynamics

Place dynamics below the stave for instruments that use only a single stave.

All parts on one stave are assumed to have a common dynamic (placed below the stave) unless otherwise specified. This is regardless of whether the parts are stemmed together or separately. When parts sharing a stave have individual dynamics, each part must take separate stems. Dynamics for the up-stemmed part are then placed above the stave (see following section; see also *Stave sharing: Dynamics*, p. 528).

For vocal music, dynamics go above the stave to avoid conflict with the text (see *Placing dynamics, expression marks and technical instructions*, p. 434).

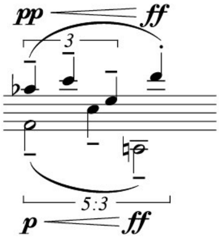
For braced parts (keyboard and harp), dynamics usually go between the two staves (see *Placing dynamics*, p. 323; for organ, see *Placing tempi and dynamics*, p. 343).

In a score, two adjacent staves of the same instrumental family may share a line of dynamics, centred between the two staves, the sharing indicated with a brace { (see *Sharing performance instructions*, p. 525).

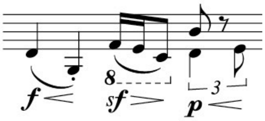
(For placing dynamics with grace notes, see *Dynamics*, p. 130.)

Placing dynamics relative to the stave

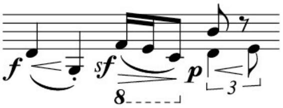
Dynamics should always be placed as close as possible to the notes to which they refer so that they cannot be overlooked. However, other markings – such as those for articulation, slurs, octave signs and tuplet brackets – are required to be closer to notes, so add these markings to the music before positioning dynamics:



and



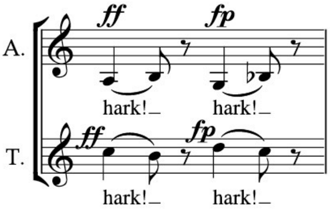
but not



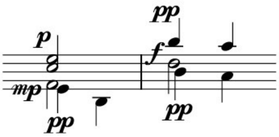
(See also *Horizontal alignment*, p. 105.)

Hairpins (< >) should never intersect a stave-line (although this occasionally occurs in keyboard writing: see *Placing hairpins with double-stemmed beams*, p. 323). A dynamic or hairpin placed on the stave becomes inconspicuous – at worst illegible.

Under exceptional conditions, a dynamic marking may be allowed to encroach into the outer stave-spaces, e.g. to minimize vertical space requirements in a large full score. This is also permissible in choral music, to prevent the dynamic colliding with the text of a voice part above:



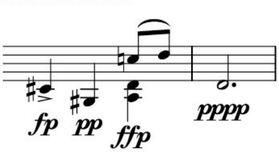
When a middle voice requires a separate dynamic, this must be placed beside its notehead:



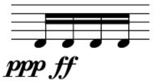
Note that in order to be legible, the bowl of ***p*** must intersect a line (and not sit in a space); the crossbar of ***f*** must not fall on a line.

VERTICAL ALIGNMENT OF DYNAMIC SYMBOLS

Centre the dynamic on the notehead:

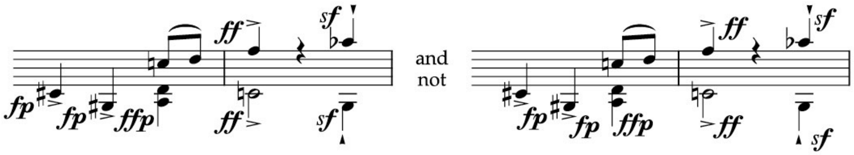


When a closely following note takes a different dynamic, three or more characters (e.g. ***ppp***) move to the left so that the last character aligns with the notehead:



(See also *Breaking a barline for a dynamic*, below.)

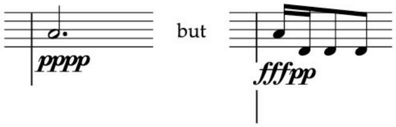
When vertical space is limited, move a dynamic to the left of the note – never to the right, since the note has already started:



BREAKING A BARLINE FOR A DYNAMIC

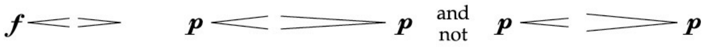
It is acceptable to have a break in a barline for text such as technical instructions and expression marks and for dynamic symbols (but not for hairpins – see *Through barlines*, p. 105). However, it is always best to have continuous barlines if markings can be moved before or after the barline.

Move an initial dynamic to the right of a barline if possible. Make a break in a barline for a dynamic that cannot move right:

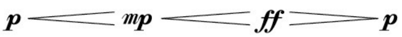


Crescendo/diminuendo signs (Hairpins)

Hairpins are the thickness of a stave-line. The open end should not be more than two stave-spaces wide. The open ends of complementary hairpins should match in width, and align horizontally:



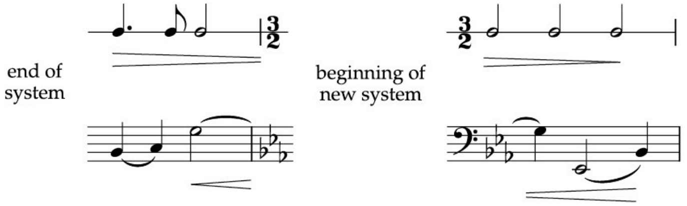
The intensity of a dynamic change is not reflected by the openness of a hairpin, which maintains the same width regardless of dynamic:



(See also *Using crescendo/diminuendo signs or text*, p. 106.)

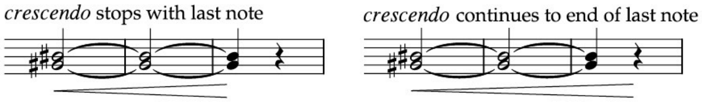
EXTENDING OVER A SYSTEM BREAK

A diminuendo hairpin remains open at the end of a system; a crescendo hairpin is left open at the beginning of the new system. A hairpin stops with the final barline and begins with the first note of the new system (or just before):

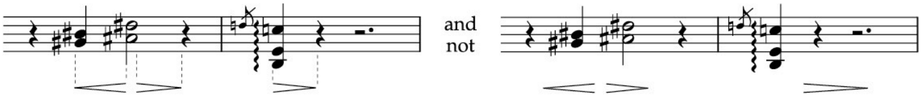

end of system
beginning of new system

HORIZONTAL PLACING

A hairpin will always be a very precise length: this is its great advantage. Therefore it must be carefully placed or its significance will change:

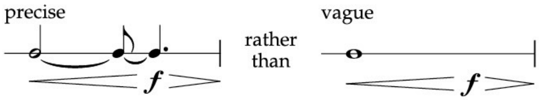

crescendo stops with last note
crescendo continues to end of last note

Do not place a hairpin before a note is started, nor after a note is finished. A hairpin should start at the first relevant notehead (not accidental) and end with the following notehead or at the first rest thereafter. Good practice is to start the hairpin on the left-hand edge of the note and to finish it on the right-hand edge of a note:



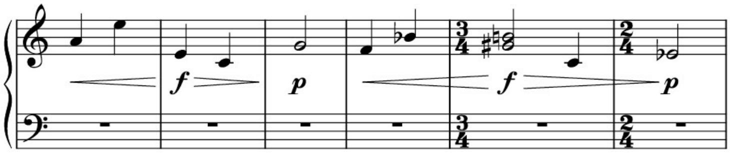
(If a dynamic symbol is present, the hairpin starts later and finishes earlier, so that the dynamic centres on the notehead or chord.)

When precision is important, subdivide note-values so that dynamics can be placed precisely:


precise
f
rather than
vague
f

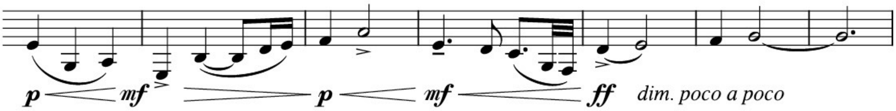
THROUGH BARLINES

A hairpin may cut through a barline, but should not start nor finish on a barline. It is neatest if a hairpin that terminates at the beginning of a bar stops short of the barline, since the space between the barline and the subsequent first beat has no time value (bars 1–3). However, it is helpful to extend a hairpin to a first beat that is some distance after a barline, to show continuity (bars 4–6):



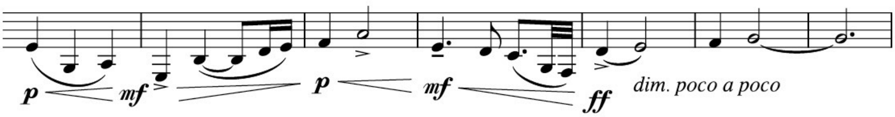
HORIZONTAL ALIGNMENT

When a sequence of changing dynamics involves hairpins, keep such markings on the same horizontal plane whenever possible. The eye most easily follows a progression of dynamics running parallel to the stave:



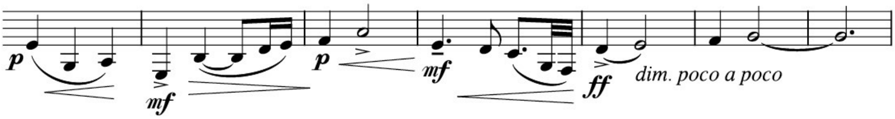
It is sometimes necessary to tilt hairpins (as in the example below) so that they will fit into a vertically compact score.

In performance material, for clarity, it is important to keep dynamics as close as possible to the notes to which they refer. A hairpin may slope to follow the contour of the pitches, so that it visibly relates to its beginning and ending dynamics (where these are present). Avoid steep gradients if possible:



A sequence of dynamics at different vertical positions should be avoided as the dynamics will appear unconnected and be difficult to follow:

incorrect



Using crescendo/diminuendo signs or text

Use hairpins rather than words for a short crescendo or diminuendo, as they are quicker to read and are more conspicuous. However, long hairpins confuse the eye, as the long lines are virtually parallel to the stave. Instead, use the terms *crescendo* (abbrev. *cresc.*), *diminuendo* (abbrev. *dim.*) or *decrescendo* (abbrev. *decresc.*).

Widely spaced dashes or dots following on from these indications may be used to identify the duration of the dynamic change – usually to a specified final dynamic (the following example would be stretched over several bars):

cresc. _ _ _ ***f*** or *cresc.* _ _ *al* _ _ ***f***

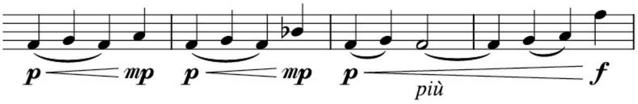
A reminder in brackets (*cresc.*)/(*dim.*) is useful at the beginning of a new system.

Qualifying dynamic change

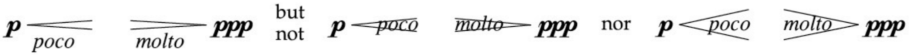
VERBAL QUALIFICATION

Terms such as *poco a poco*, *più*, *molto* and *meno* alert the reader to:

- a gradual change over a long passage (e.g. *cresc. poco a poco*)
- a sudden change (e.g. *dim. molto*)
- a change from a preceding pattern:

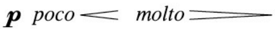


Qualifying text should be placed above or below a hairpin – to place text inside a hairpin obscures the text or opens up the hairpin too much:



Qualifying text occurring before or after a hairpin is ambiguous as it appears to refer to the starting or finishing dynamic:

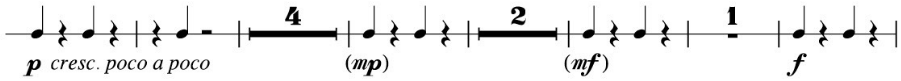
incorrect



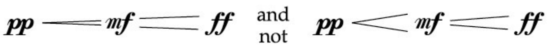
INTERIM DYNAMICS

Dynamics may be added at strategic points during a long crescendo or diminuendo, e.g. for a new phrase or after rests. This is a precautionary measure to advise the performer not to change the dynamic level too quickly or too slowly. Interim dynamics should be used sparingly: their repeated use can look fussy and destroy the impression of a long phrase. Alternatively, add reminders such as *cresc./dim. sempre* after rests or at the beginning of a new system.

Place interim dynamics in brackets, to indicate their transitional status:


4
2
1
p cresc. poco a poco
(mp)
(mf)
f

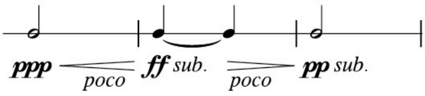
A hairpin may be broken for an interim dynamic. Maintain the same angle for the hairpin either side of the interim dynamic, so that the hairpin is clearly one gradual dynamic change. It is unnecessary in this case to enclose the interim dynamic in brackets since it is clear that the dynamic change continues:


pp
mf
ff
and
not
pp
mf
ff

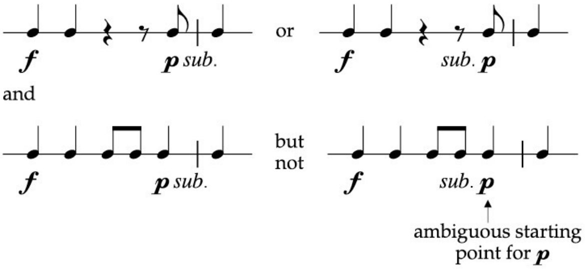
SUDDEN DYNAMIC CHANGES

The term *subito* ('suddenly'; abbrev. *sub.*) alerts the performer to an abrupt dynamic change. It also indicates that an interim dynamic change has not been omitted.

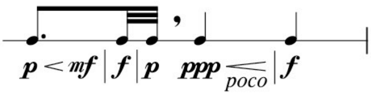
Use *subito* to show when a dynamic is not the logical conclusion of a hairpin:


ppp
poco
ff sub.
poco
pp sub.

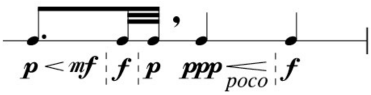
Place a dynamic exactly under the first note to which it refers, and fit in *sub.* around the dynamic: usually to the right, so that the placing of the new dynamic is not ambiguous. When a rest precedes the dynamic, *sub.* may also precede the dynamic:


f
p sub.
or
f
sub. p
and
f
p sub.
but
not
f
sub. p
ambiguous starting
point for p

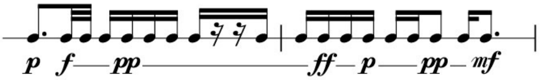
Where there is not space to include *sub.*, use a vertical stroke or dotted line between each sudden dynamic change:



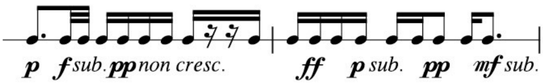
or



A dynamic may be followed by a horizontal line to indicate no dynamic change (e.g. when another part does take a change of dynamic). This makes cautionary *non cresc.*/*non dim.* instructions and the use of *subito* redundant:



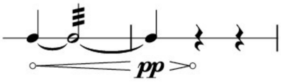
rather than



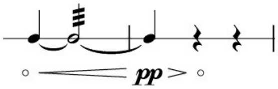
Niente

Niente = nothing; *dim. al niente* = fade to nothing

A small circle at the closed end of a hairpin may be used to indicate growing from, as well as fading to, nothing. The circle is best attached to the hairpin, since a free-floating circle is inconspicuous:



rather than

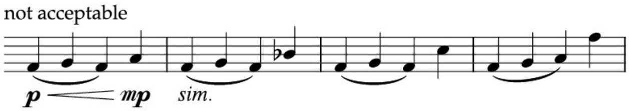


Not every performer will be conversant with this notation, and so it should be clarified with an explanatory note.

Repetition of dynamics

In ensemble music, reiterate dynamics after rests, to save the performer looking back for a dynamic while preparing for the next entry. 'Reminder' dynamics may be given in ordinary round brackets (as in the first example under *Interim dynamics*, p. 107). The brackets indicate an unchanged dynamic. These are useful especially when other performers have different dynamic levels. But it is not helpful to reiterate an unchanged dynamic constantly, since this tends to clutter the music.

A repeated pattern of dynamics should always be written out in full rather than using *simile* or *sim.* (as is customary for repeated articulation: see *Repeated articulation*, p. 116). The performer will almost certainly forget them completely:



(For *sforzando* and *rinforzando*, see *Intensity of attack*, p. 115.)

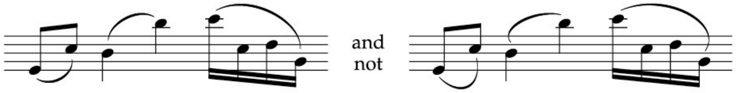
ARTICULATION

Slurs

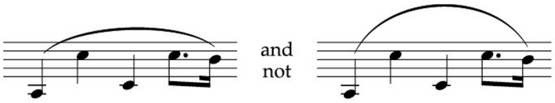
The slur has a number of different meanings relating to articulation in addition to its general use as a phrase mark. For the wind player, it is the number of notes not separately tongued (see *Articulation*, p. 245); for the string player, the number of notes in a bow stroke (see *Combined-note bowing*, p. 401); for the singer, the number of notes sung to one syllable (see *Syllabic slurs*, p. 435).

Design

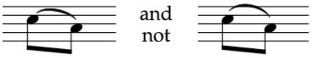
The slur is the same tapered arc as the tie, although the tie may have a flatter curve to allow room for slurs and to differentiate the two (see *Ties*, p. 60). When notes at the beginning and end of a slur are the same pitch, the slur may look identical to a tie because it will, like the tie, be completely symmetrical. When the outer pitches are different, the ends of the slur are at different heights and the slur tilts between the first and last note. Aim for as consistent a curve as possible:



The curve of a long slur is flattened in order to be as close to the stave as possible. In fact, a long slur may be completely flat in the middle, since a rounded one extends too far from the stave:



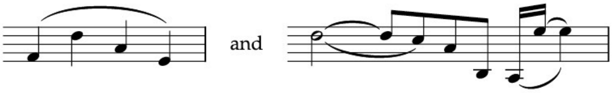
On a stave, the arc should be placed in a stave-space in order to be most conspicuous:



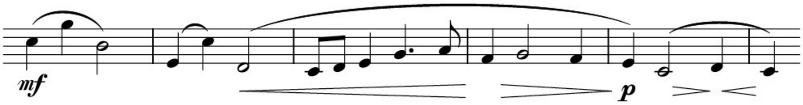
Positioning relative to the stave

When all stems within the slur are in the same direction, the slur is usually placed between the outer noteheads.

When groups of mixed stem direction are encompassed by a slur, place the slur above the stave, except when a beam may be in the way:



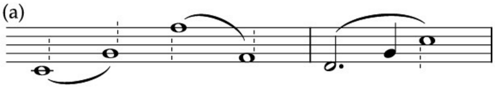
Regardless of stem direction, in cramped conditions it may sometimes be best to place a long slur above the stave, to be clear of dynamics:



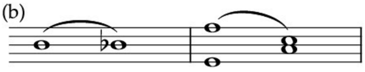
Slurs for the left-hand stave of a keyboard part may go below the stave to be clear of mid-system dynamics (see *Placing slurs*, p. 321).

For stemless notes, place the slur as if the notes were stemmed (a). Slurs for notes on the centre line and chords equidistant from the centre line can go either side, but are usually treated as if the notes had down-stems (b):

(a)



(b)

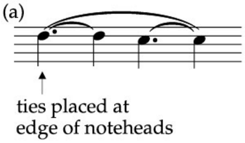


Positioning relative to noteheads and stems

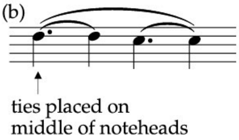
SLURS NEXT TO NOTEHEADS

The ends of a slur may be placed as close as half a stave-space from the centre of noteheads, including where ties are placed at the edge of noteheads (a). Where there is plenty of space, the tie starts and finishes at the centre of the notehead; in this case, the slur must move further from the note, so that its ends can also centre on it (b):

(a)



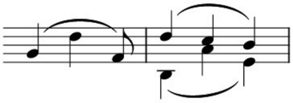
(b)



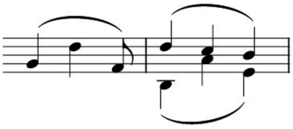
(See also *Placing articulation and slurs with ties*, p. 62.)

SLURS AT STEM END

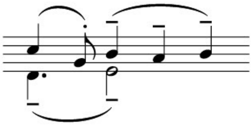
Where other notes or stems will not be obstructed, the slur may move slightly closer to the noteheads, beside the stems, so as to be more conspicuous:



rather than

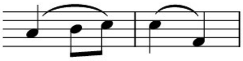


Where staccato and tenuto marks falls within the slur, the slur cannot move towards the noteheads but must remain at the ends of the stems:

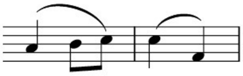


(See *Placing slurs with other articulation marks*, p. 121.)

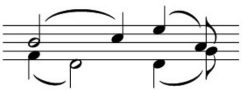
When outer notes have opposite stem directions, move the slur at the stem end towards the noteheads so it does not tilt contrary to the direction of the pitches:



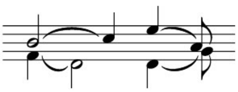
and not

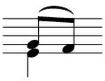


The slur should not, however, move too close to noteheads if there is room for it to be further away. It should always remain outside a beam:

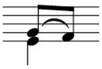


and not



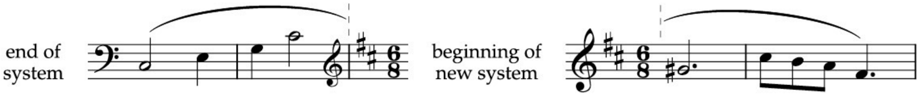


and not

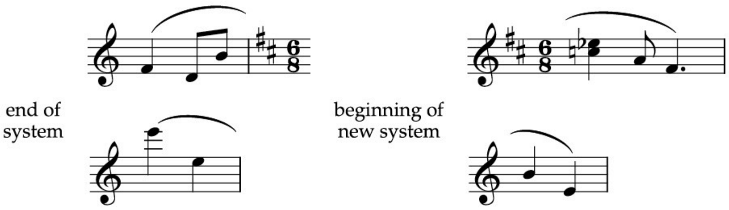


Slurs over a system break

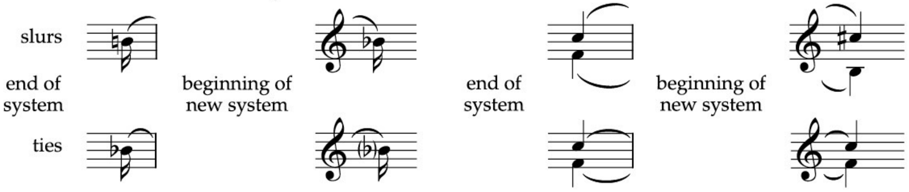
At the end of a system, the slur finishes just short of the last barline, and not beyond it. At the beginning of the new system, the slur starts after the clef, key signature and time signature, but before any accidental. The incomplete slur should look clearly open-ended, or each side of the system break will appear to take a separate slur:


end of system
beginning of new system

Take all the notes within the slur into account when determining whether the slur goes above or below the stave – do not swap position between systems:

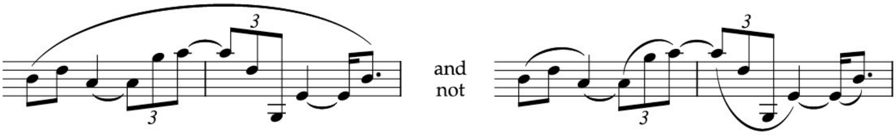

end of system
beginning of new system

The whole slur should tilt in the direction of the pitches (as in the second example above). A slur starting on the last note of a system or finishing on the first note of a system must be angled in the direction of the final pitch on the new system, so as to look clearly open-ended (this differentiates an open-ended slur from an open-ended tie):

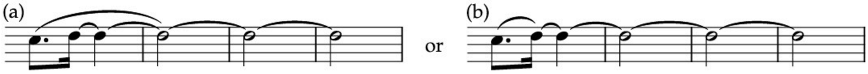

Slurs and ties over a system break
slurs
end of system
ties
beginning of new system
end of system
beginning of new system

Slur length

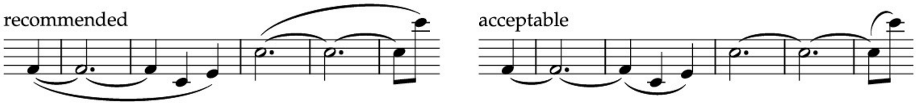
One complete slur should cover a whole phrase, so that its full extent is immediately clear. Do not divide a slur between notes of a phrase, nor around tied notes. In full scores, divided phrase marks are sometimes used in cramped conditions, to save space. These should never be used in performance material, since they obscure the phrase length:



When a final pitch is extended by a series of tied notes, it is acceptable (and a convention) to end the slur with the first whole-bar duration (a); alternatively, in cramped conditions, with the first tied note (b):

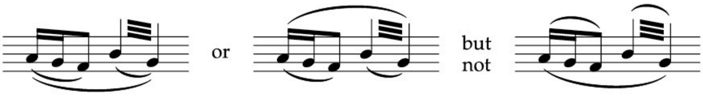


When an initial note is tied, the slur may begin with the final written tied note if absolutely necessary, to save space; however, it is much better to clarify phrase length by starting the slur with the first note:



Slurs within slurs

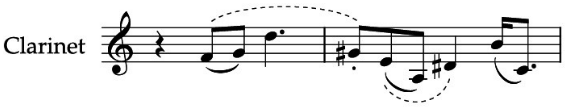
When two slurs are used simultaneously, the shorter one represents articulation, the longer one the phrase structure. The shorter slur goes closest to the notes:



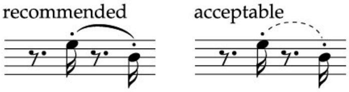
Note that it is best not to use two sets of slurs in music for wind and strings, since this causes confusion (see also *Two-note tremolos: Slurs*, p. 228).

Dotted slurs

A dotted slur may indicate where a literal legato is not possible, i.e. where individual notes within a phrase are rearticulated:

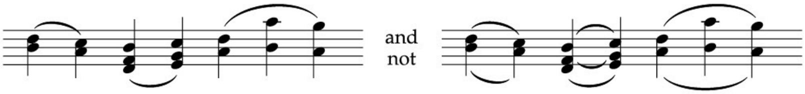


When a phrase includes rests, a solid slur is equally valid, and visually less fussy:

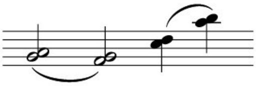


Slurs between chords

All notes on one stem take a single slur, and not a slur to each note:



For adjacent-note chords, centre the slur on the notehead that is on the correct side of the stem:



(For combining slurs and ties between chords, see *With slurs*, p. 71.)

If parts are separately stemmed, each requires its own slurs (see *In double-stemmed writing*, p. 117).

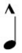
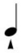
(See also *Placing slurs with other articulation marks*, p. 121; for placing slurs with grace notes, see *Slurs*, p. 129.)

Articulation marks

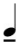
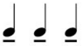
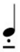
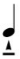
Definition

Articulation marks are interpreted by their context – the style and period of the music. They have the flexibility to be adapted to different styles; conversely, this can lend them an ambiguity to challenge the interpreter. Since different schools of performance may assume separate interpretations, it can be advisable to state at the beginning of a piece exactly how articulation should be performed, especially if interpretation is to differ from the definition given opposite.

In general, present-day interpretation is as follows:

	strong accent (see also *Intensity of attack*, below)
	standard accent
	tenuto: separated articulation, or a stress, or a note held for its full duration
	staccato wedge or dash: a heavy staccato (between marcato and staccato), also *staccatissimo* (see below)
	staccato (abbrev. *stacc.*)

Staccatissimo (abbrev. *staccatiss.*) is best indicated verbally together with staccato dots.

The tenuto line  implies either holding a note for its full length, or a slight separation from surrounding notes: . In combination with a staccato mark it lengthens the note:  and  .

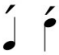
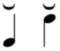
INTENSITY OF ATTACK

The accent symbols above may be replaced by the following terms:

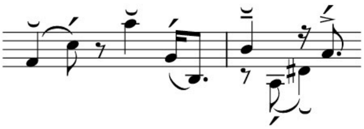
- *sforzando/sforzato* ('reinforcing'; both abbrev. *sf* or *sfz*) is used for a sudden accent
- *rinforzando/rinforzato* (abbrev. *rf/rfz/rinf.*) has the same meaning but is sometimes used for a part (or a passage) that should predominate

These terms can be modified according to the dynamic: at dynamic levels of *f* they appear as *sf* or *sfz*, at *ff*, they become *sff* or *sffz*; and at *fff*, *sfff* or *sfffz*.

STRESS SYMBOLS INTRODUCED BY SCHOENBERG

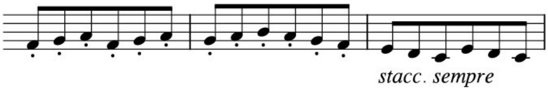
Schoenberg introduced symbols to represent a stressed note:  and an unstressed note: . These symbols function to indicate when stresses contradict the metre (see *Cross rhythm*, p. 171).

The symbols should be placed above the stave, except in double-stemmed writing (see bar 2), and outside any articulation marks:

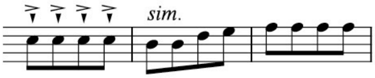


Repeated articulation

Staccato sempre and *marcato sempre* indicate repeated articulation. It is helpful to notate the articulation in full initially:



Simile (abbrev. *sim.*) may replace repeated bars of other articulation marks, and combined marks:



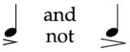
(See also *Technical instructions*, p. 492; for articulation on repeated-note abbreviations, see *Repeated articulation*, p. 223.)

Symbol design

With the exception of the staccato dot, articulation marks should match the width and height of a notehead, or be slightly larger.

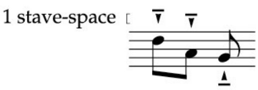
The strong accent ∧ : this is thicker on one side than the other: ∧ ∨. The up-bow symbol V, which has two thin diagonal strokes, is not a substitute.

The standard accent >: this has lines of equal thickness. It is slightly wider than a notehead, but if it is too wide it may look like a diminuendo hairpin:

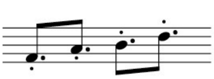


The tenuto line: this is thicker than a stave-line so as to be conspicuous. It is the width of a notehead.

The staccato wedge: this sign should be sufficiently bold for it to be easily distinguished from a staccato dot:

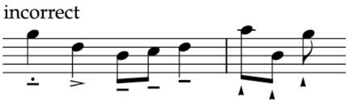


The staccato dot: this is smaller than the duration dot:



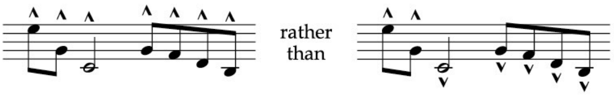
Placing articulation next to noteheads or stems

Articulation goes where it is most conspicuous: to the notehead. Except in double-stemmed writing (see below), never place articulation below downstems:

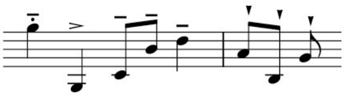


(For placing articulation on grace notes, see *Articulation*, p. 130.)

The strong accent ∧ usually goes above the stave, regardless of stem direction, because of the amount of space it occupies. Placing the accent above the stave also avoids its inversion ∨, which, in some contexts, may look like an up-bow symbol in string writing:

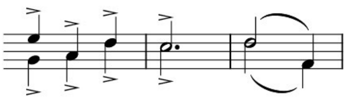


When space below the stave is limited, all articulation may be placed above:

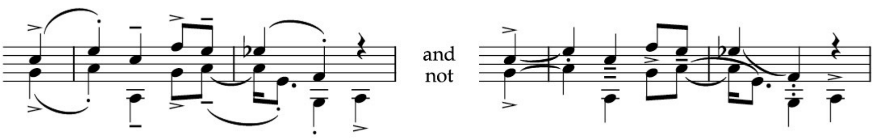


In double-stemmed writing

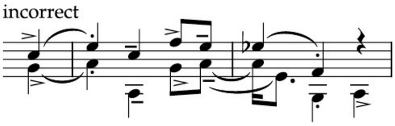
Each part requires its own articulation marks (including slurs), even when the two parts have identical articulation and phrasing. This includes unisons:



Place articulation marks at the end of each stem. Articulation should never be placed on the notehead side of a part as it must be clear which marking belongs to which note. Any articulation on the stave is extremely confusing in double-stemmed writing:



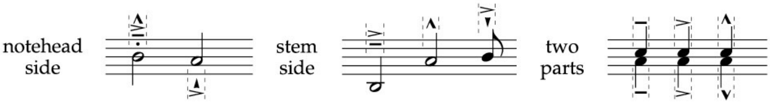
Articulation should not move closer to the note than the end of the stem, as this also is confusing:



(See also *Placing slurs with other articulation marks*, p. 121; also, *Sharing stems*, p. 525.)

Exact positioning beside noteheads and stems

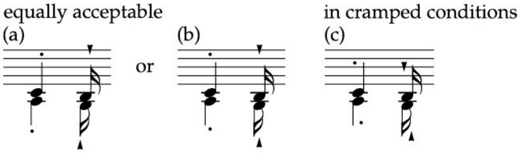
Articulation is centred in line with the notehead, whether positioned next to a notehead or a stem (but see also *Staccatos at stem end*, below):


notehead side
stem side
two parts

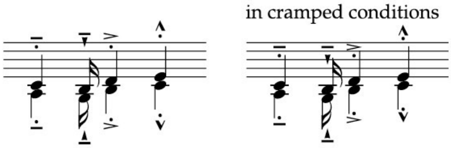
Thus, in double-stemmed writing, the articulation aligns vertically between the parts. (Some editions do, however, centre articulation on the stem.)

STACCATOS AT STEM END

Staccato dots and wedges by themselves look best centred on a stem and therefore are an exception to the above rule (see (a) below), although many editions do centre them on the notehead (b). They may move beside the stem in cramped conditions (c):

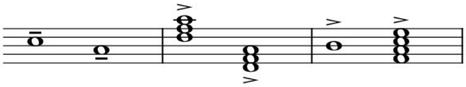

equally acceptable
(a)
or
(b)
in cramped conditions
(c)

When staccato dots or wedges are combined with other articulation marks – which are always centred on the notehead – staccato dots should be centred too:

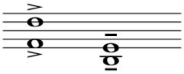

in cramped conditions

STEMLESS NOTES

Place articulation as if the note were stemmed. Notes on the centre line or chords equidistant from the centre line are usually treated as if they had down-stems (bar 3):

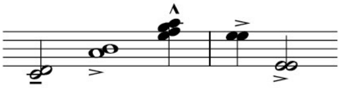


When there are two parts on one stave, articulation for stemless notes moves in close to the noteheads:



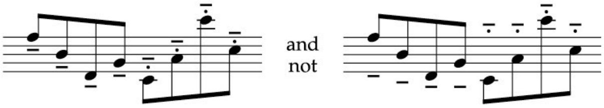
ADJACENT- AND UNISON-NOTE CHORDS

Centre articulation on the notehead that is on the correct side of the stem:



Distance from noteheads

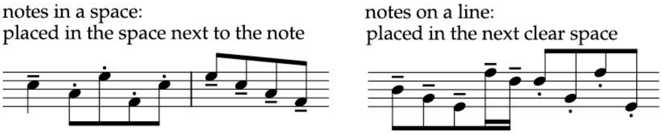
Articulation marks are best placed a consistent distance from each notehead, so that the eye can follow them most easily:



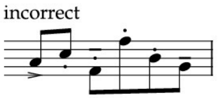
ARTICULATION ON THE STAVE

Place articulation marks no closer than the first clear stave-space from the note.

Centre tenuto lines and staccato dots in a stave-space:

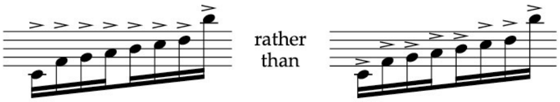

notes in a space:
placed in the space next to the note
notes on a line:
placed in the next clear space

A stave-line must never obscure the articulation:

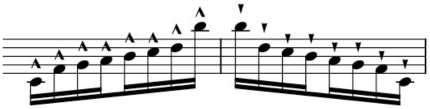


Accents > ∧ and staccato wedges are usually best placed outside the stave, where they are most conspicuous. They can move onto the stave when they would otherwise be a long way from the note (see following two examples).

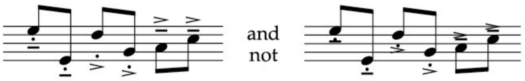
The accent > is clearest when centred in a space. As it tends to obscure a pitch when placed in the stave, a series of accents is best placed outside the stave:



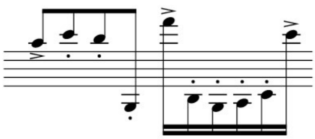
The ∧ accent and staccato wedge should intersect a stave-line for greatest legibility. The top part of the ∧ accent intersects the line so that the white space at the peak shows through:



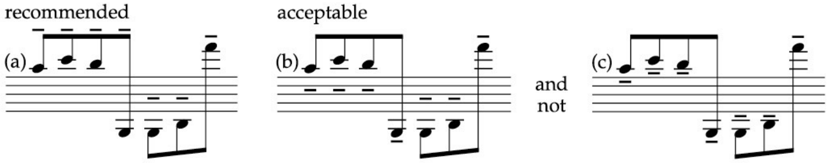
An additional mark takes a separate stave-space further from the note. Do not cram more than one articulation mark into a stave-space or both become illegible:



When ledger-line notes require articulation between the notehead and the stave, place articulation marks no closer to the notes than the outermost stave-spaces. This ensures that articulation does not collide nor obscure ledger lines:

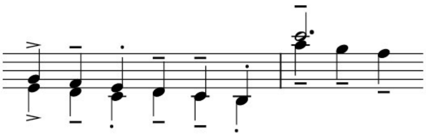


Tenuto lines should be even further from ledger lines (b) so that the eye does not confuse the two (c). When there are several notes on ledger lines, tenuto lines are best placed at the stem ends of up-stemmed notes, for clarity (a):



Distance from stems

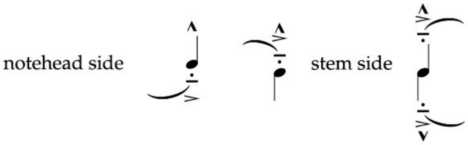
Within the stave, place articulation marks in the first clear stave-space beyond the end of the stem. Articulation outside the stave should be about half a stave-space from each stem:



Only staccato dots and wedges may fall within the length of the stem (see *Staccatos at stem end*, p. 118).

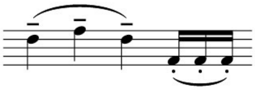
Placing slurs with other articulation marks

The smallest signs go closest to the notehead:



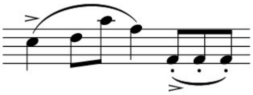
The staccato wedge is placed in the same position as the staccato dot.

Usually, only tenuto lines and staccato marks may go inside the first and last notes of a slur:

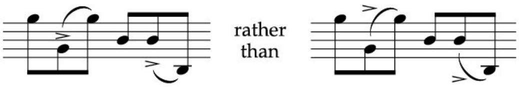


(See also *Interpreting tenuto and staccato marks at ends of slurs*, p. 122.)

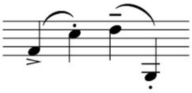
Articulation marks in the middle of a slur go inside the slur. Accents at the beginning and end of a slur usually go outside the slur, so that the slur can remain closer to the noteheads:



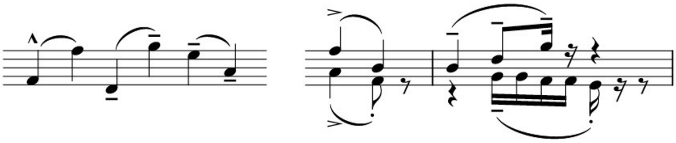
An exception is when they would otherwise be too far from a note to be immediately apparent:



When notes within a slur have mixed stem direction, place articulation marks beside each notehead, even though the slur is above the stave:

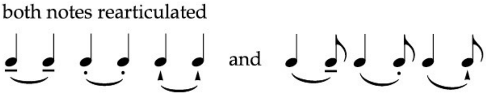


Centre a slur on a stem. With the addition of a tenuto line between the slur and a stem, centre the slur, like the tenuto line, on the notehead (when there is a staccato dot, the slur centres on the stem):

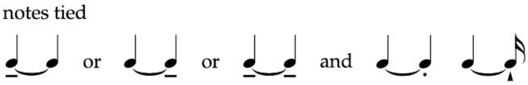


INTERPRETING TENUTO AND STACCATO MARKS AT ENDS OF SLURS

To show a slur between two consecutive notes of the same pitch, place articulation between slur and noteheads:



When articulation is placed outside the slur on either or both of the two notes, the slur becomes a tie:



5

Grace Notes, Arpeggiated Chords, Trills, Glissandos and Vibrato

Grace notes 125
Arpeggiated chords 131
Trills 134
Glissandos 140
Vibrato 146

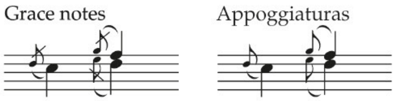
Grace notes

Design

Grace notes are notated as small noteheads with stems shortened to about 2¼ stave-spaces. Tails, beams, articulation and accidentals are also scaled down proportionally. The sharp and natural signs become 2 spaces long (rather than the normal 3), the flat is 1¾ spaces long.

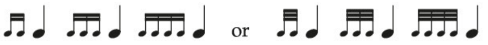
The grace note is slightly smaller than a cue note, which is ¾ of a full-sized note (see *Cue notation*, p. 569).

A single grace note is a small quaver with a diagonal stroke that intersects the tail. It is essential to use the diagonal stroke to differentiate the grace note from an appoggiatura:

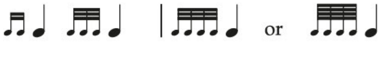


A group of grace notes is joined by one or more beams. A diagonal stroke may be placed through the beam if grace notes might otherwise be confused with an appoggiatura.

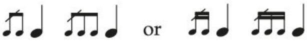
The traditional practice is to use most commonly two, but often three, beams to join groups of two or more notes. Two beams are recommended as they give the least cluttered appearance:



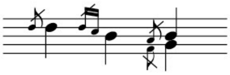
Some editions use two beams to join two notes and three beams to join three or more notes. Four beams sometimes join four or more notes:



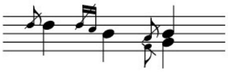
It is common practice to place a diagonal line through a single beam. If preferred, in addition two or more beams may be used (as above):



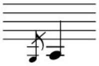
The diagonal line should intersect the tail or beam without colliding with the notehead:



and
not



Ensure that a grace note on ledger lines has a sufficiently long stem for the diagonal stroke not to obscure a ledger line:



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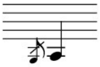
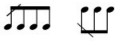


(See also *Ledger lines*, p. 26.)

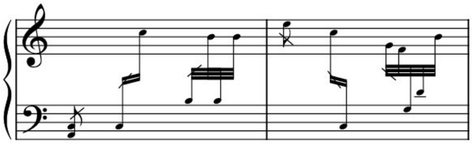
Place the diagonal stroke so that, ideally, white space shows through between the stem, the tail or beam and the diagonal.

PLACING DIAGONAL LINES ON GRACE-NOTE GROUPS

Place the line at the beginning of a group, and diagonally to the beam:



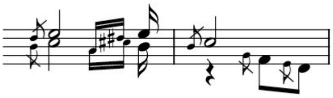
With double-stemmed beams (stems extending in both directions from a beam), the stem direction of the first note determines the position of the diagonal line. The direction of the diagonal is the same as for the single grace note of the same stem direction:



(See also *Double-stemmed beams*, p. 315.)

Stem direction

Grace notes take up-stems, regardless of their position on the stave. An exception to this is where there are two parts on one stave, in which case the lower part takes down-stems:

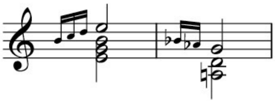


The other exceptions are: where there are double-stemmed beams (as shown above); also, where grace notes are attached to a measured value (see *Grace notes on the beat*, p. 129).

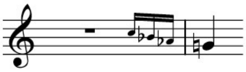
Alignment

RELATIVE TO THE BARLINE

Grace notes are placed before the position of the beat regardless of whether they are performed on or before the beat. Grace notes preceding the first beat of a bar are usually placed after the barline:

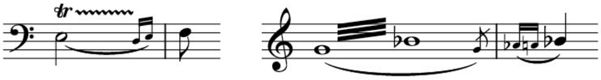


Grace notes sounding on the beat should always be placed after the barline. However, a group of three or more grace notes sounding before the beat may go before the barline so that the first beat of the following bar is not pushed too far from the barline:



(See also *Performing grace notes on or before the beat*, p. 128.)

The finishing notes of a trill or tremolo are written as grace notes and should be placed before the barline:

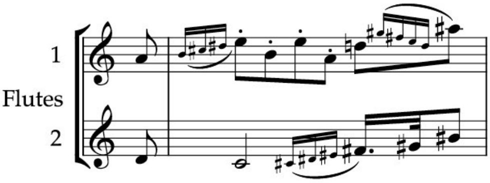


(See *Trills: Starting and finishing notes*, p. 138.)

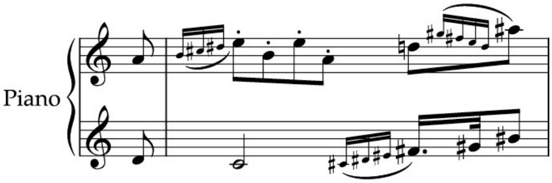
RELATIVE TO ANOTHER PART

Grace notes written after the barline displace the first beat to the right. All other parts align with the measured value and not with the grace notes (see following example).

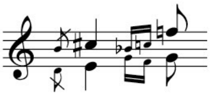
In a score, when grace-note groups come after the beginning of the bar, note-spacing in one part need not necessarily be expanded to accommodate grace notes in another part, even though the grace notes start later in the bar than the rhythmic alignment suggests. This facilitates score-reading, as it prevents distorted note-spacing of a single beat:



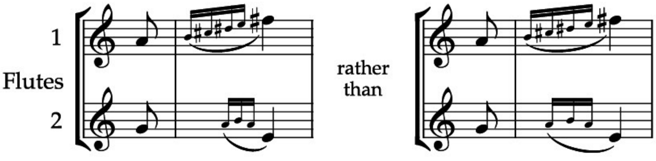
Observe correct vertical alignment in a single-instrument part, so as not to confuse the player:



When there are two parts on one stave, align the grace notes of the two parts:



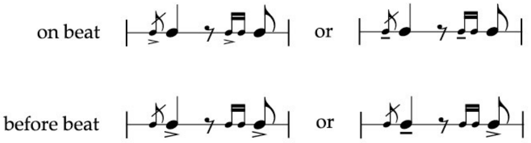
When two parts with grace notes are on separate staves, it may be more helpful visually to close up grace notes to the following measured value, regardless of vertical alignment (accidentals may force some grace notes further apart than others and precise vertical alignment causes unwanted gaps between notes):



Performing grace notes on or before the beat

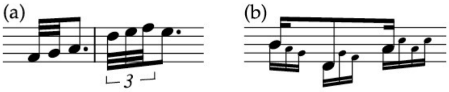
Unless the context is very obvious, clarify where grace notes are to be placed. To write grace notes before a barline clearly indicates that they should be sounded before the first beat but this notation is limited to first beats. A general instruction is unambiguous: ‘all grace notes to be placed before the beat /on the beat’.

When grace notes are to be placed both on and before the beat, different articulation may indicate placing (clarify this with an instruction):



GRACE NOTES ON THE BEAT

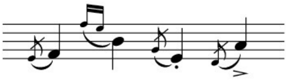
If accents are not appropriate, differentiate notes to be sounded on the beat either by writing them in rhythm (a) or, alternatively, by joining them to a measured note (b). In the latter case, grace-note stems should point away from the measured notes:



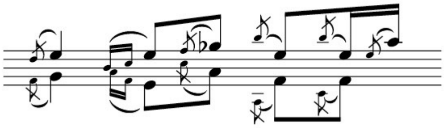
Slurs

Grace notes are slurred to the following measured value, provided that this is the required articulation. Slurs should not be used with grace notes on instruments of indefinite pitch (see *Grace-note slurs for drum strokes*, p. 297).

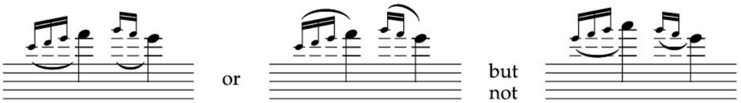
The slur goes below the grace note, from notehead to notehead:



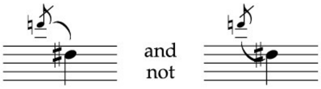
When there are two parts on a stave, curve the grace-note slurs away from the stave. The slurs may be placed close to noteheads where they would otherwise collide with beams (third beat):



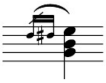
A slur must not obscure a ledger line. It is often preferable to place slurs above ledger lines to avoid collision:



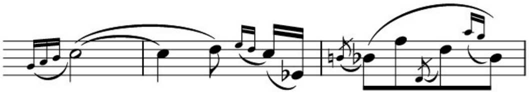
A slur should always be placed above the notes when it would otherwise collide with the accidentals of a measured value:



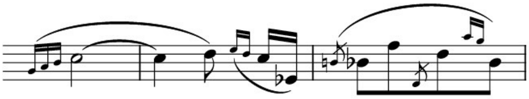
and so that grace notes can be slurred to the uppermost note of a chord (the slur should lead to the pitch that resolves the ornament):



It is usual (and recommended practice) for each grace-note group to take an independent slur, even when this occurs within a standard slur. Each independent slur helps to identify visually the grace-note groups:

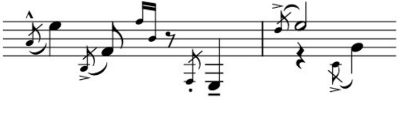


It is also acceptable to include grace notes within a standard slur, and to omit independent slurs. Although this is less fussy, the grace notes lose some visual definition:



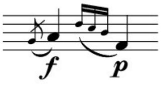
Articulation

Place articulation for grace notes where it will be most conspicuous – this will usually be outside the stave since scaled-down articulation is difficult to see on the stave:

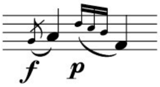


Dynamics

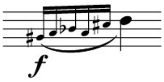
Traditionally, a dynamic is centred under the measured value, except when grace notes take separate dynamics. It is also acceptable to place a dynamic under the first grace note. The longer the group of grace notes, the more useful it is to do this, as the dynamic is more conspicuous at the beginning of the group:



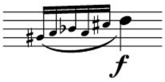
or



but



rather than

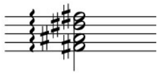


(See also *Accidentals affecting grace notes*, p. 84.)

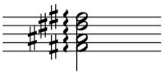
Arpeggiated chords

Design

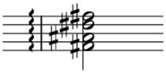
The arpeggio sign is a wavy line similar to, or the same as, the design of the shaded trill line (see *Extent of the trill line*, p. 136). This extends vertically to encompass all arpeggiated notes (but not the stems as well). The sign should precede any accidentals, and must come after a barline:



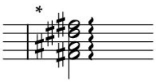
and not



nor



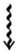
nor

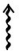


The arpeggio sign always precedes a chord. A wavy line placed after a chord (* above) is used by Bartók (e.g. in the 14 Bagatelles for piano, op. 6) to indicate a downward arpeggio (but see below for recommended notation).

Arpeggio direction

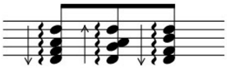
A chord is arpeggiated from bottom to top pitches unless otherwise indicated.

A chord arpeggiated from top to bottom takes a downward arrow: 

A subsequent upward arpeggio requires an upward arrow: 

An upward arrow is needed only when there are also downward arpeggios.

An arrow preceding the arpeggio sign has the same meaning, but occupies more space:

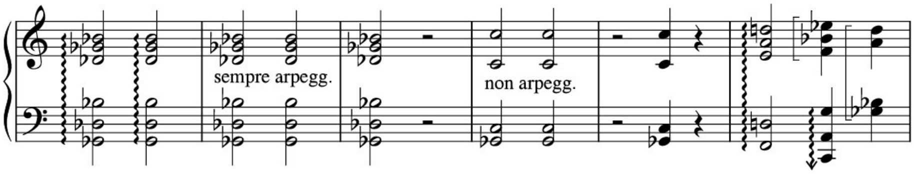


An arrow without a wavy line indicates a fast strum for various stringed instruments (for harp, see *Chord glissandos (Strumming)*, p. 360; for guitar, see *Strumming*, p. 379; for bowed strings, see *Strumming*, p. 409).

Extent of arpeggiation

Sempre arpeggiando (abbrev. *arpegg.* or *arp.*) or *arpeggiando sempre* indicates repeated arpeggiation. This may be used as a general instruction to replace the arpeggio sign (this is the norm in harp music), or as an instruction to continue arpeggiation after the initial use of the arpeggio sign (as is the norm in keyboard and guitar music).

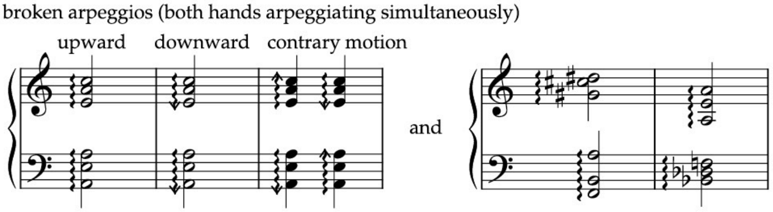
Non-arpeggiated chords are then indicated *non arpeggiando* or, within an arpeggiated passage, by a vertical square bracket that encompasses the chord. When the chord is laid out across two staves, extend a single bracket across both staves. One bracket is quicker to read than individual brackets for each hand (although this is not incorrect) – see last bar:



CHORDS ARPEGGIATED ACROSS TWO STAVES

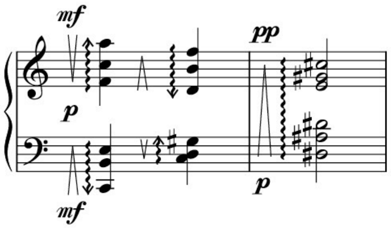
An unbroken arpeggio across two staves must be notated with one continuous line (as in the example above, bar 1).

A broken arpeggio, in which both hands arpeggiate simultaneously, has a separate arpeggio sign for each hand and, if included, an arrow for each sign. When both or either of the chords has accidentals, place each arpeggio sign as close to each chord as the accidentals will allow (the signs need not align between staves):



Changing dynamic during arpeggiation

A hairpin may be placed vertically through the stave(s), preceding the arpeggio sign, to cover the extent of the chord. Dynamics at either end of the hairpin are placed outside the stave:



Performing chords on or before the beat

A chord will be spread before the beat unless the playing style suggests otherwise. Chords spread on the beat should be indicated with a verbal instruction, e.g. ‘All chords to be spread *on* the beat.’ Alternatively, chords spread on the beat may be notated as consecutive pitches (see below).

Speed

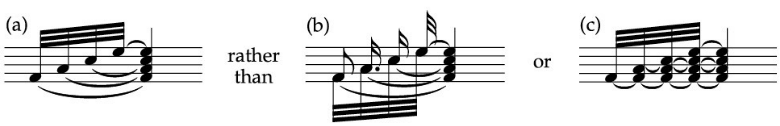
The speed of arpeggiation should be prescribed verbally as *arpeggio lento/ largo/rapido* or *slow/fast arpegg.*, and so on (see first example, p. 379).

Arpeggiated chords notated as consecutive pitches

Slow arpeggios may be best notated as consecutive pitches, either as grace-note groups or in a given rhythm as appropriate.

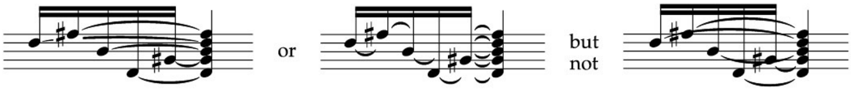
An order of notes to be played other than directly up or down the chord should be notated as consecutive pitches (see example *Dividing ties*, below).

A notation convention allows consecutive notes joined by a beam to be tied over to a chord, even though this does not show accurate durations for every note (a). The double stems and durations of the following typical nineteenth-century example are unnecessary (b) as are the repeated tied notes of (c):

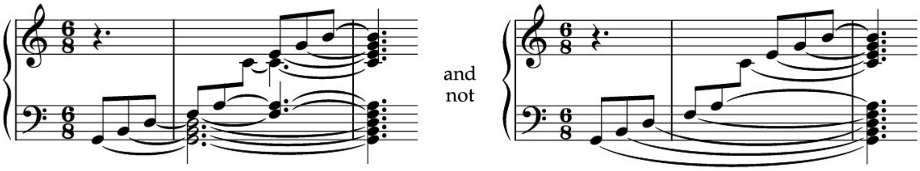


Should it not be possible to tie each note without obscuring a notehead, it is acceptable to divide one or more of the ties:

Dividing ties

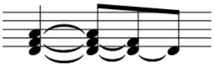


Tied notes must be reiterated across beats:



When notes are not held manually, *laissez vibrer* ties may be used instead (see *Laissez vibrer*, p. 72).

To release notes from a tied chord it is necessary to notate full durations for each tied note:



(For harp arpeggios, see *Playing style of chords*, p. 357; for guitar, see *Playing style of chords*, p. 378.)

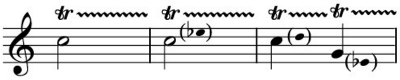
Trills

Definition

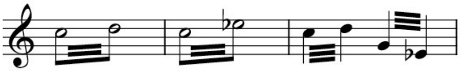
Although a trill is usually reserved to notate the alternation of notes a tone or semitone apart, the rapid alternation of any two notes, including a tremolo between two notes, may be notated as a trill.

In terms of performance practice, the starting note of the trill presupposes a prominence over the trilling note that is not implicit in a two-note tremolo. Some musicians feel that the trill has nineteenth-century performance-style connotations, and prefer the two-note tremolo notation. Either notation is equally valid.

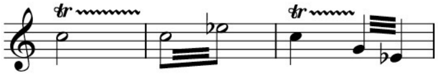
Traditionally, the written note trills with its upper neighbouring note (a tone or semitone distant). However, it is acceptable to allow a trilling note to include wider (higher or lower) intervals. Thus a passage of alternating notes at different intervals may be notated either as trills:



or as two-note tremolos:



rather than as a combination of the two, which looks disjointed:



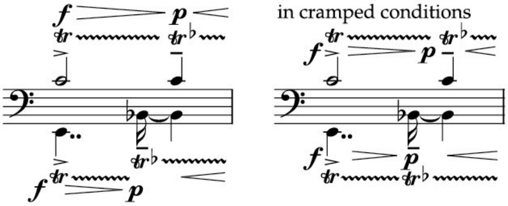
(See also *Trilling note*, p. 138, and *Two-note tremolos*, p. 225.)

Design and placing

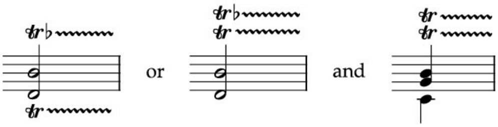
The trill (Italian: *trillo*) is represented by a stylized sign in bold italic: ***tr***. The sign is always positioned above the stave except in double-stemmed writing. Place the sign flush with the left-hand edge of the notehead, further from the note than any articulation marks. Only a long slur, a pause or octave sign goes further from the stave.

DOUBLE TRILLS

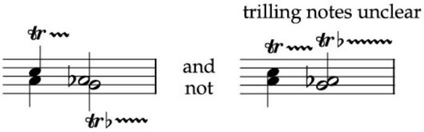
In double-stemmed parts, the trill sign for the lower part goes below the stave. Where there is room, place any dynamic markings further from the stave:



A single-stemmed chord comprising two instruments playing single trills or one instrument playing double trills may take single stems, as long as two trill signs are indicated. The signs may be placed each side of the chord, except where there is a third voice on the stave (see third example):



When one part only has a trill, assign the parts separate stems so that it is clear which part trills:

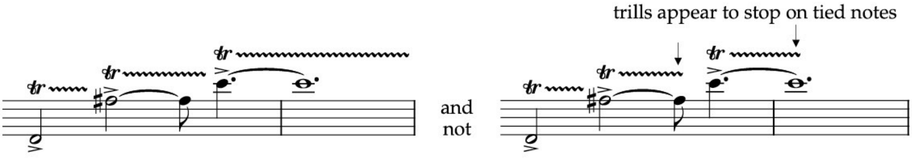


(See also *Woodwind: Double trills*, p. 256.)

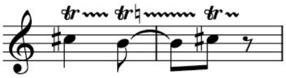
Extent of the trill line

The trill line – a shaded, wavy line, placed directly after the trill sign – is used to indicate the extent of a trill.

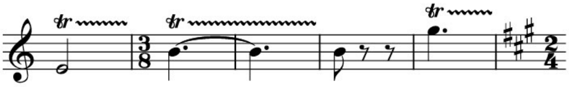
The trill line is optional for a single note-value, but must be used with tied notes (see also *Continuous or discontinuous trills*, opposite). The trill line extends for the entire duration of the note, and not merely as far as the last written note:



In the middle of a bar, the trill line continues right up to the following notehead or its accidental (if it has one):

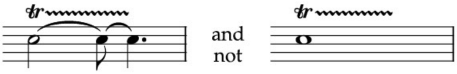


The trill line stops at a barline:

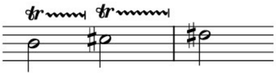


At the end of a system, the trill line stops with the barline. (In score layout, the line stops just before the barline so as not to collide with it.)

When a trill is to terminate before the end of a note, divide the note-value to show the exact length of the trill. A tie indicates that the note following on from the trill is not re-articulated:

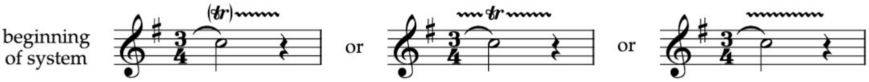


To indicate that the trill finishes before the next note, not with the next note, terminate the trill line with a vertical notch. Place the cut-off point before an accidental for the following note; at the end of a bar, place it on the barline:



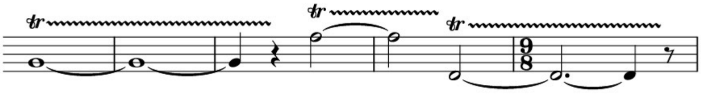
TRILLS OVER A SYSTEM BREAK

The trill sign should, ideally, be repeated on a new system, above the first entry and in brackets, to indicate that the trill has already started. If brackets are not used, then the wavy line should precede the trill sign instead. A wavy line without a trill sign is sometimes used but this notation is less clear:

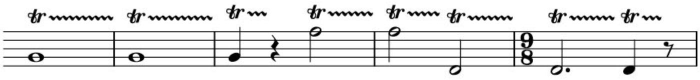


Continuous or discontinuous trills

For a continuous trill of more than one note-value, notes should be tied to indicate that there is no re-articulation on a following note. The trill line is continuous for the duration of the ties:



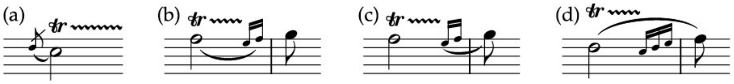
If a trill is to be re-articulated with each note-value, assign individual trill signs and omit ties:



(The last example above is also the obsolete notation for continuous trills.)

Starting and finishing notes

A grace note may specify when the starting note is other than the written note (a). Grace notes should also be used to specify finishing notes. According to the required articulation, slur the grace notes to the measured note (b) or to the following note (c), or include both (d):

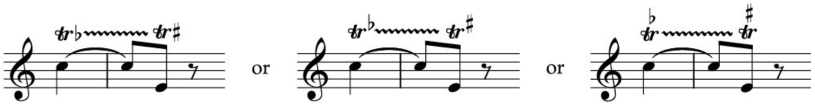


Trilling note

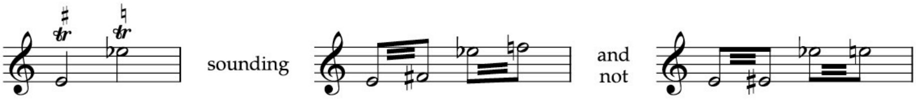
When no trilling note is indicated, it is the upper neighbouring note; this pitch is modified by a key signature. An accidental for the trilling note is either notated with an accidental sign alone, or with a written trilling note (see below).

WITH ACCIDENTAL SIGN ONLY

The accidental follows the trill sign or goes above it. Whichever layout is used depends on the priority for horizontal or vertical space-saving:



The accidental refers to the next note of the scale above the written note – not the same note of the scale:



To avoid any possible ambiguity, the trilling note may be written in (see below).

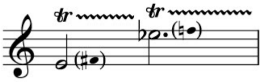
(See also *Accidentals affecting ornaments*, p. 84.)

WITH WRITTEN TRILLING NOTE

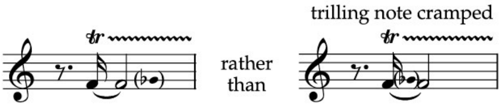
A trilling note that is the same note of the scale as the measured note (but with a different accidental) must be written in.

It is also necessary to notate a trilling note when it differs from a previous one (see example *Change of trilling note*, opposite).

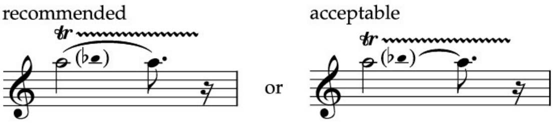
Notate the trilling pitch as a small notehead in brackets after the measured note. Do not use a grace note for the trilling pitch; reserve grace notes for the starting and finishing notes of a trill (see *Starting and finishing notes*, opposite).



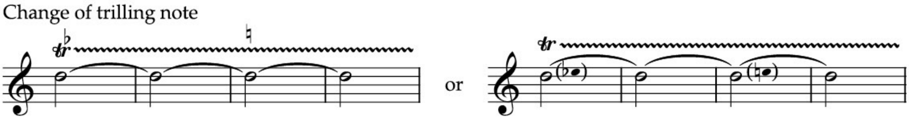
If the first note of a tied trill is a short value, add the trilling note after the second note, where there is more room. This avoids cramping or distorting the spacing of the short note:


tr
rather than
trilling note cramped
tr

A tie should not run through a trilling note. It should start from the measured note if there is room; otherwise, after the trilling note:

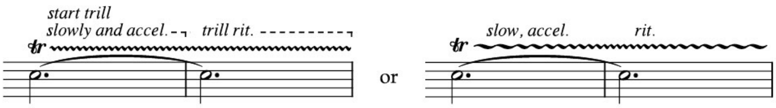

recommended
tr
or
acceptable
tr

It is not necessary to indicate that the same trilling note continues over a barline or system break as this is assumed unless otherwise indicated. A change of trilling note is notated as follows:

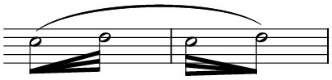

Change of trilling note
tr
or
tr

Variation in trill speed

This may be indicated by a verbal instruction above the trill line, as in the following example. In a complex score with many technical instructions, it may be helpful to change the intensity of the trill line itself, to reflect the changing speed, and thus a verbal instruction is necessary only in the first instance:


start trill
slowly and accel.
trill rit.
tr
or
slow, accel.
rit.
tr

An alternative notation is to use a two-note tremolo with fanned beams (see *Beamed groups indicating variation in speed*, p. 158):



Glissandos

Definition

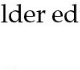
The term *glissando* (abbrev. *gliss.*) is used throughout this book as a generic term to describe both a chromatic-step scale between pitches, and a genuine microtonal slide covering all intermediary pitches.

Some schools of thought define *glissando* as 'to slide chromatically between pitches' (as on keyboard or harp). In practice, *glissando* frequently describes what has often been defined as a *portamento* (abbrev. *port.*): a smooth, microtonal slide, as can be produced on stringed instruments, trombone, and so on, and by voices.

The term *portamento* may, of course, be substituted in the following examples where appropriate. However, *port.* is often intended to indicate an expressive legato slide between two pitches, and the term *glissando* reserved for a more deliberate, continuous slide. (It is always safest to clarify intended interpretation in a preface.)

For instruments capable of producing both chromatic and microtonal glissandos (woodwind, brass and strings), it is necessary to clarify when only chromatic semitones are to be played. The chromatic pitches should be notated in full, as measured or grace notes. An instruction may be added for clarity: *chromatic gliss.* (see *Chromatic glissandos*, p. 248).

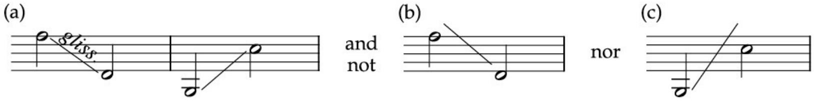
A diagonal line indicates both glissando and portamento. A thin straight line is recommended, although some older editions use a wavy line (this can take up too much space):



The instructions *gliss.* or *port.* should also be placed close to the lines, and used at least at their first appearances. This is especially important in a part on two staves (keyboard and harp), so that the glissando line is not mistaken for a voice-leading indication (see *Voice-leading between staves*, p. 307).

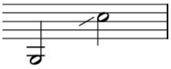
Placing the glissando line

The glissando line should follow the course of the pitches exactly. Angle it precisely between the noteheads (a). The line should not appear to start above the first notated pitch (b), nor to go beyond the finishing pitch (c):

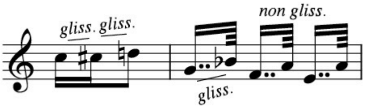


A glissando indication may be angled parallel to the line and be placed on the stave, as long as it remains legible ((a) above).

Shorten the length of a line only when the glissando is intentionally shorter than the interval between two pitches:



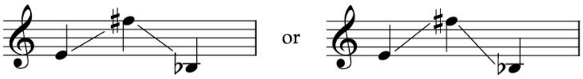
Where the distance between pitches is too short to contain a glissando line, place the line above or below the notes, away from the stems. In such cases, clarify the function of the line with a *gliss.* indication. Place the indication as close to the glissando line as possible:



When a repeated figure should no longer contain a glissando, the indication *non gliss.* is helpful (bar 2, above).

WITH ACCIDENTALS

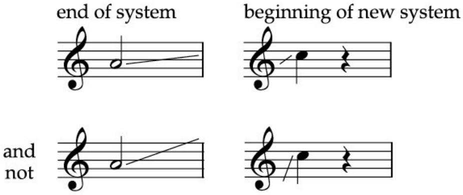
A glissando line should not run through an accidental and risk obscuring it. Stop the line short of an accidental, or angle it to the left of the accidental:



(See also harp examples under *Glissandos*, pp. 357–9.)

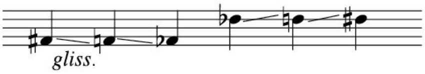
OVER A SYSTEM BREAK

Reflect the correct interval of a glissando in the gradient of the line:


end of system
beginning of new system
and not

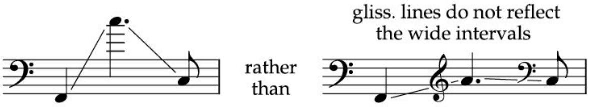
BETWEEN NOTES OF THE SAME PITCH LETTER

Angle a glissando line in the direction of the raised or lowered pitch, in order to illustrate the progression of the slide:

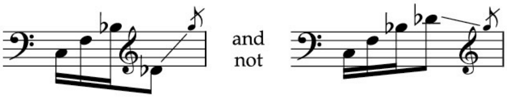


WITH CLEF CHANGES

Where possible, avoid changing clef in the course of a glissando: use ledger lines instead. The gradient of the line then reflects more clearly the intervals between pitches:


rather than
gliss. lines do not reflect the wide intervals

Never arrange a clef change so that the angle of the glissando line would be in the opposite direction to the slide:

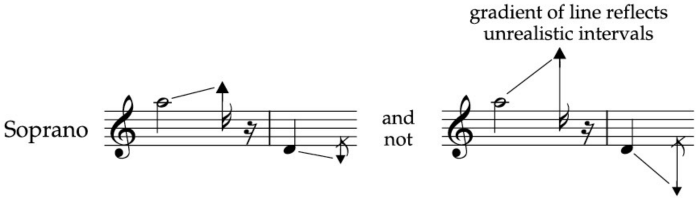


(See also example under *Glissandos with clef changes*, p. 359.)

TO AND FROM UNSPECIFIED PITCHES

The glissando line should accurately reflect the intended pitch range. Do not give a steep gradient to a line that is likely to reflect only a small interval (see following example).

If the glissando is to an unspecified highest or lowest note, a triangular notehead indicates the end pitch of the glissando (see *Triangular noteheads*, p. 12):



If the highest or lowest note available is a pitch that can be prescribed, notate this pitch rather than using a triangular notehead (see also *Finishing pitch*, p. 144).

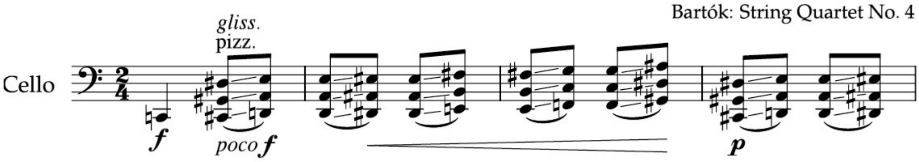
In harp music, an arrow placed at the end of a glissando line indicates direction but not a specific finishing pitch (see *Continuous sweeps*, p. 358).

The speed of a glissando to or from an unspecified pitch should be prescribed verbally, e.g. *gliss. rapido/lentiss.* or *fast/very slow gliss.*, since there cannot be a prescribed interval that would indicate how fast to cover the given duration (see *Score sample 2*, p. 620).

PARALLEL GLISSANDOS

Place parallel lines for parallel glissandos. Regardless of the number of notes, only one *gliss.* instruction is necessary:

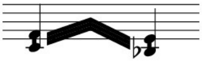
Bartók: String Quartet No. 4



(For harp, see *Parallel-chord glissandos*, p. 358.)

WITH CLUSTERS

It is not practical to allocate separate glissando lines for individual pitches of a chromatic cluster (e.g. for keyboard). Instead, place a broad band to match the width of the cluster. The band may rise or fall as required:

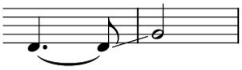


Alternatively, if more practical, draw a glissando line for the outer pitches and fill in the band with shading (see Stockhausen, *Klavierstück X*).

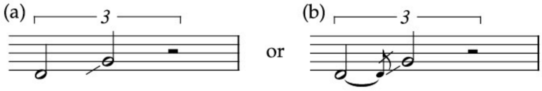
(See also *Note clusters*, p. 326.)

Glissando starting midway through a duration

Divide an initial note-value to show exactly where a glissando starts:

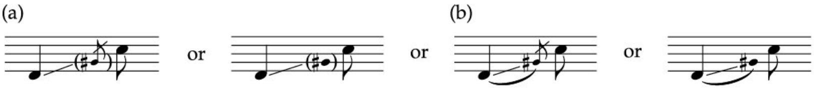


When the exact starting point of a glissando is unspecified, an initial note-value need not be divided (a). To place a glissando just before the next measured value, tie the initial note to a grace note (b):

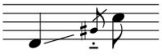


Finishing pitch

It is necessary to indicate an independent finishing pitch when a glissando is followed by a rest, by a separately articulated note or by a note that is other than the final pitch of the glissando (as in the following example). Notate the finishing pitch as a grace note or small stemless notehead. To indicate that the finishing pitch is not separately articulated, place a bracket around it (a) or add a slur between the two pitches (b):

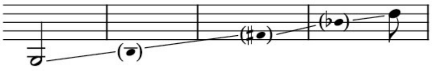


When the finishing note is to be separately articulated, clarify this by giving an articulation mark to the grace note:

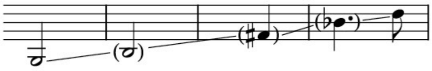


Interim pitches

To indicate the progression of a slow or a long glissando, notate interim pitches in brackets either as small noteheads, or as note-values of the correct durations for the part of the bar in which they occur:

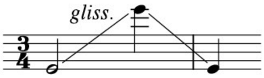


or



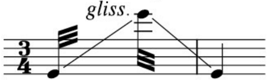
Note-value of initial pitch

The initial pitch should take the full duration of the glissando if this is possible within one note-value (a short note-value is not recommended, as it gives no clue of the glissando's duration):



and not

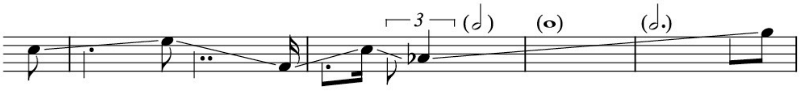
duration of each glissando unclear



When the initial pitch cannot take full duration, it should take the longest duration it can: the value of a bar, half-bar or beat. Subsequent durations are indicated as outlined below.

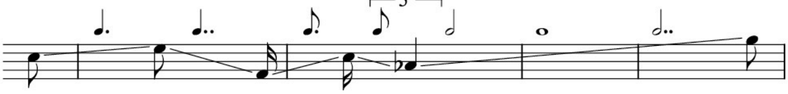
Durations of more than one note-value

Notate the first note of the glissando as an ordinary note-value (see previous section). Subsequent note-values of less than a minim lose their noteheads but indicate their rhythms with stems close to or attached to the glissando line. Place any duration dot beside the stem, on the stem side of the glissando line. The direction of the stems is conventional, as if there were a notehead at the point where the glissando line intersects the stave. Since a bar looks incomplete or confusing without the notation of its total duration, indicate minims and semibreves as small note-values – with or without brackets – over the stave:

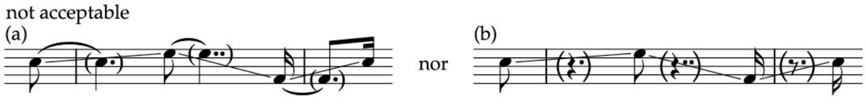


It is best not to notate all values subsequent to the initial pitch as small notes above the stave, since the eye has to keep moving from the stave to read duration:

not recommended

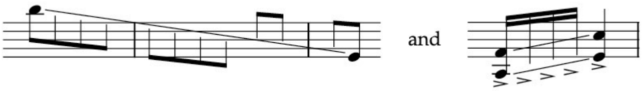


The traditional practice of notating tied initial note-values to indicate a moving pitch is confusing for a performer who has already moved off the note. Furthermore, the collision of noteheads and glissando line tends to make them obscure each other (a). Avoid replacing glissando durations with rests or bracketed rests as these are disconcerting (b); always use note-values for continuous sound:



Articulation during a glissando

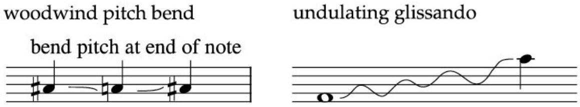
Use stems close to or attached to the glissando line, to indicate articulation during a glissando:



Glissando line indicating pitch contour

It is best to clarify verbally any unusual glissando notation, e.g. ‘glissando to raise and lower pitch so as to reflect contour of line’.

A glissando line may be curved to any contour in order to give a better graphic description of the resultant sound than straight lines:



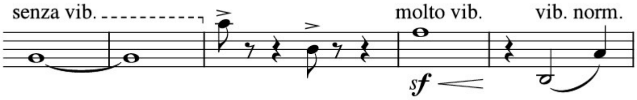
(See also *Glissandos from the jazz repertoire*, p. 267, and *Pitch bend (Lip glissando)*, p. 248.)

Vibrato

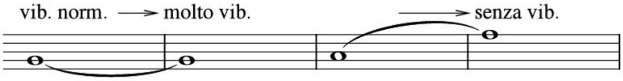
A specific intensity of vibrato (abbrev. *vib.*) may be requested, which differs from the normal vibrato used by wind and string players and singers. The specification may be for speed (*fast* or *slow vibrato*) or for amplitude (*wide vibrato*, *¼-tone vibrato*, etc.); for much vibrato (*molto vib.*) or for exaggerated vibrato (*vib. esag.*).

Senza vib./non vib. ('without vibrato') is an instruction to suppress normal vibrato (indicated *vib. norm.* or *ord.* after a contrary instruction). It is confusing to abbreviate either *non vib.* or *vib. norm.* to *n.v.*

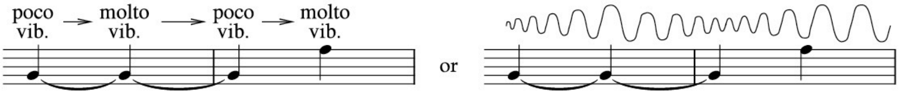
A vibrato style is indicated verbally above the stave, and followed either by a dotted line for its duration (bars 1–2), or cancelled by a further instruction (last bar):



To indicate gradual changes in vibrato, place an arrow between instructions:



An unshaded wavy line (not the shaded trill line) may replace verbal instructions to indicate visually that vibrato should change. Such graphic representation is necessary only when frequent verbal indications would otherwise congest the appearance of the music. Increase and decrease of vibrato speed, width, or both (according to the given definition) are reflected by corresponding changes in the contour of the wavy line:



This graphic notation requires an explanatory note, e.g. 'Increase and decrease vibrato speed and width with the corresponding line depth.'

6

Metre

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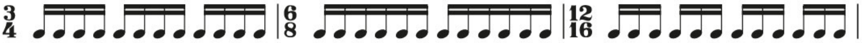
Introduction

Barring for practicality

Notated metre represents a pattern of accented and unaccented beats within a bar. For some composers the implied hierarchy of accent within metre is not relevant and they use barring solely for convenience: for the practical purposes of conducting, for co-ordination in unconducted music and to facilitate reading rhythm in manageable bar lengths. Accents are notated where they are required, but otherwise the beginning and subdivisions of the bar are not intended to be stressed. Such scores should indicate that barlines are for co-ordination only and have no function as metric accentuation. Ligeti notes this in some of his scores (see, for example, the Chamber Concerto and *Ramifications*).

Barring for metrical purposes

Composers for whom the hierarchy of accent is relevant will select one time signature in preference to another to determine the placing of such implied accents. For example, $\genfrac{}{}{0pt}{}{3}{4}$, $\genfrac{}{}{0pt}{}{6}{8}$ and $\genfrac{}{}{0pt}{}{12}{16}$ are of equal bar length (twelve semiquavers) but $\genfrac{}{}{0pt}{}{3}{4}$ has three stresses, $\genfrac{}{}{0pt}{}{6}{8}$ has two stresses, $\genfrac{}{}{0pt}{}{12}{16}$ has four stresses:



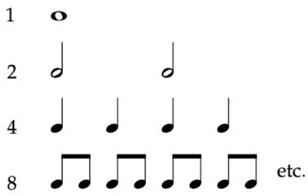
A time signature will be associated with its specific beat stresses unless the musical content contradicts them (see *Cross rhythm*, p. 171).

Rhythms, including rests, are specifically grouped so that the eye can identify where the beats of the bar fall (see *Beaming according to the metre*, p. 153, *Grouping inner beams*, p. 156, and *Grouping rests according to the metre*, p. 160).

Time signatures

Definition

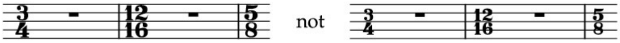
The upper figure of the time signature, the numerator, shows the number of note-values contained in the bar as expressed by the lower figure. The lower figure, the denominator, is the number of those note-values that, together, add up to a semibreve (thus $\genfrac{}{}{0pt}{}{3}{4}$ = 3 crotchets in a bar, $\genfrac{}{}{0pt}{}{6}{8}$ = 6 quavers in a bar). In other words, the denominator is the division of the semibreve into equal parts:



(See also *Denominator as any division of the semibreve*, p. 180.)

Size and placing

Time-signature numerals should exactly fill the height of the stave. Smaller numerals are not sufficiently conspicuous:



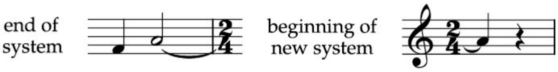
Time-signature numerals use a unique heavy font so that they stand out as clearly as possible against the stave. The font distinguishes them from other numerals so that the eye identifies them instantly.

At the beginning of a piece, the time signature goes after a clef and any key signature. It holds good for a whole movement or up to a change of metre. It should be repeated at the beginning of a new movement, even if this is the same as that of the previous movement, and even when the music follows on from the previous movement without a break (see *Layout between movements*, p. 486).

Placing time-signature changes

The new time signature is always placed after the barline.

When a change of time signature occurs between systems, add a cautionary indication at the end of the first system, after the last barline:

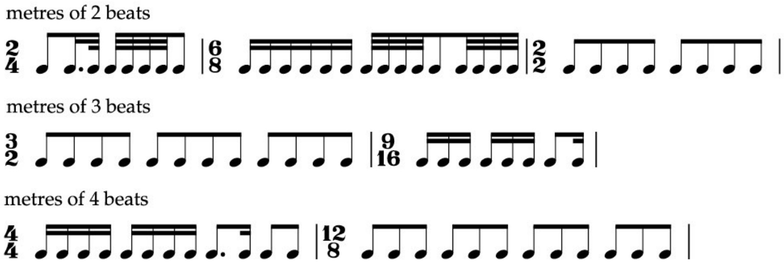


A thin double barline precedes a change of time signature only when one coincides with a new musical section.

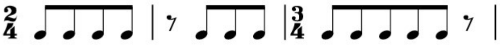
(For part preparation, see *Time signatures*, p. 563; for score layout, see *Enlarging time-signature symbols*, p. 519.)

Beaming according to the metre

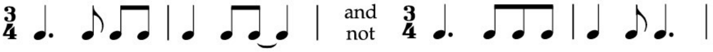
Divisions of a beat are beamed together in all metres, in order to simplify reading beats:



In $\frac{2}{4}$ and in $\frac{3}{4}$, any number of quavers can be beamed together:



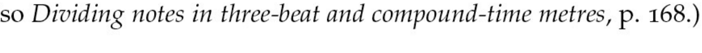
This is provided that groups in $\frac{3}{4}$ do not give the appearance of $\frac{6}{8}$ accentuation. For example, the following common figurations should be notated thus:



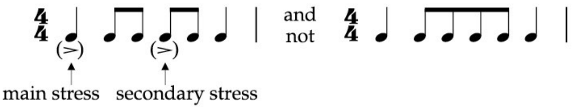
The second example incorrectly implies $\frac{6}{8}$ accentuation. (Music from the Classical and Romantic periods frequently uses this beaming – the context makes it clear that cross rhythm is not intended.)

(See also *Dividing notes in three-beat and compound-time metres*, p. 168.)

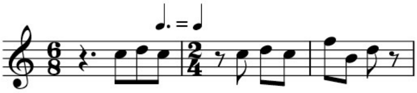
In $\frac{4}{8}$ and in $\frac{4}{4}$, groups of semiquavers and quavers respectively may be beamed into half-bars:



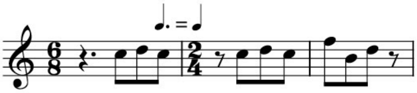
However, notes should never be beamed over the middle of the bar, since the third beat carries a secondary stress which should always be indicated in the notation:



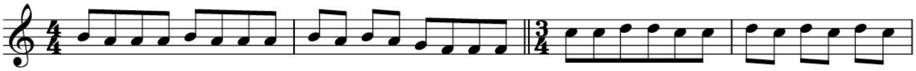
If in doubt – and for utmost clarity – beam together only the notes of a single beat. In the following example the quavers in $\substack{2\\4}$ are beamed into single beats to make clear the different accentuation from the $\substack{6\\8}$ dotted-crotchet beat:



and
not



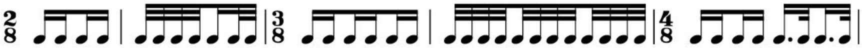
Beams joining two or three beats may also be separated to indicate a change of pitch pattern:



Beaming must not obscure bar division in any metre (see Table 1, opposite; see also *Metres of variable stress*, p. 178).

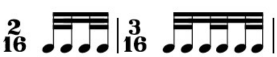
QUAVER-BEAT METRES

It is acceptable to beam together groups of two and three quavers, provided that inner beams are divided to indicate the quaver beats:



SEMIQUAVER-BEAT METRES

Groups of two or three beats may be joined together, provided that the innermost beam is divided to indicate the semiquaver beats (semiquaver beams must join semiquaver beats):



(See also *Grouping inner beams*, p. 156.)

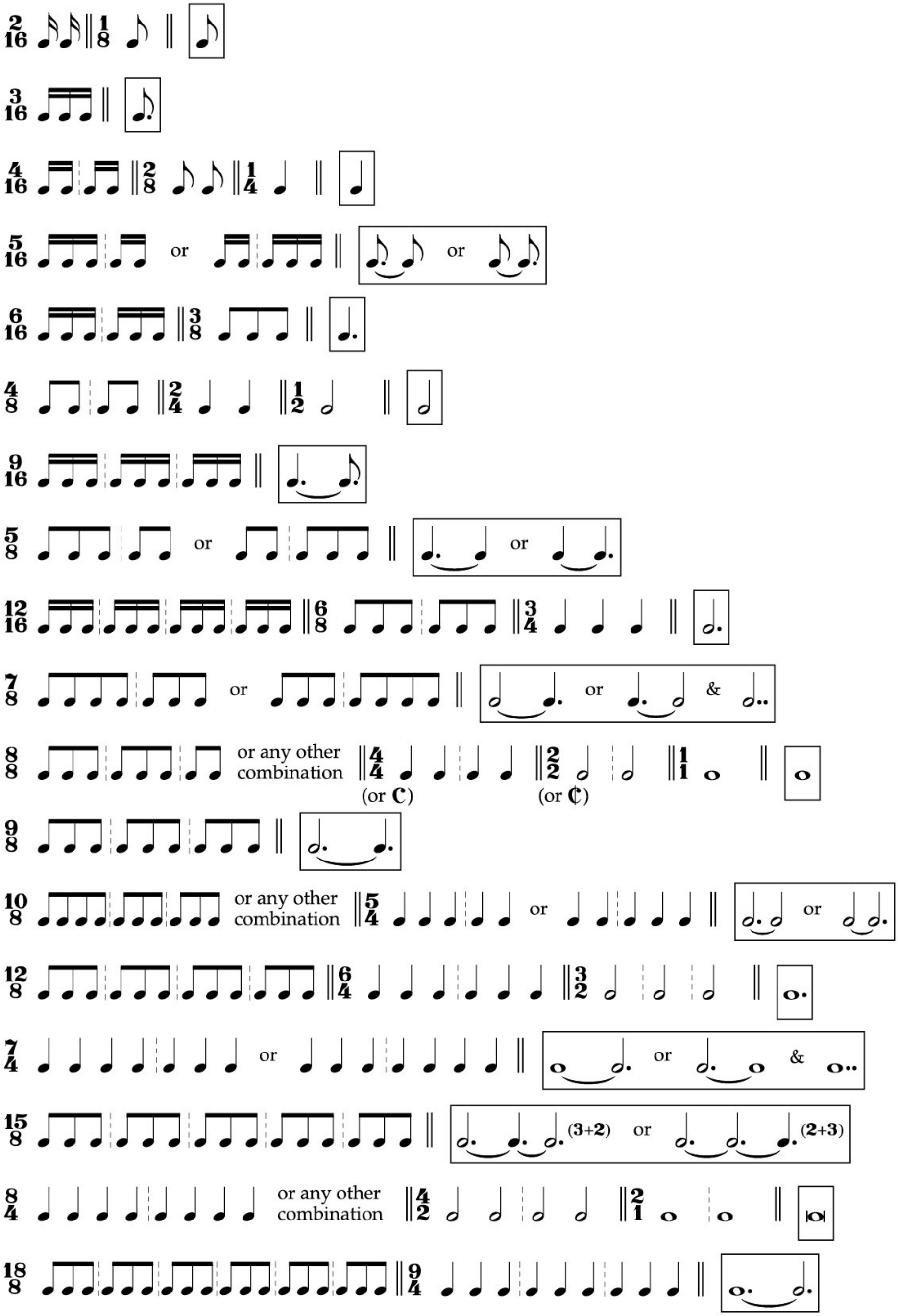
COMPOUND TIME

Beams join notes within a beat, never across a beat. The dotted lines in Table 1 (opposite) show this.

$\substack{6\\4}$ is a compound-time metre (𝅗𝅥. + 𝅗𝅥.). It is sometimes used in alternation with crotchet metres ($\substack{4\\4}$ etc.) to mean $\substack{3\\2}$ (𝅗𝅥 + 𝅗𝅥 + 𝅗𝅥) in order to indicate a continuing crotchet beat. Although not strictly correct, this convention is permissible – as long as the accentuation of the bar is clarified by correct $\substack{3\\2}$ grouping of both note-values and rests.

TABLE 1: Beaming according to the metre

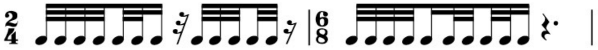
Beams must not cross the indicated vertical dotted lines.
The boxes contain the notated duration of a whole bar for the given time signatures on that line.


2/16 ‖ 1/8
3/16
4/16 ‖ 2/8 ‖ 1/4
5/16 or ‖ or
6/16 ‖ 3/8
4/8 ‖ 2/4 ‖ 1/2
9/16
5/8 or ‖ or
12/16 ‖ 6/8 ‖ 3/4
7/8 or ‖ or &
8/8 or any other combination ‖ 4/4 (or C) ‖ 2/2 (or ₵) ‖ 1/1
9/8
10/8 or any other combination ‖ 5/4 or ‖ or
12/8 ‖ 6/4 ‖ 3/2
7/4 or ‖ or &
15/8 ‖ (3+2) or (2+3)
8/4 or any other combination ‖ 4/2 ‖ 2/1
18/8 ‖ 9/4

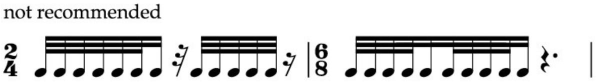
Grouping inner beams

Groups of notes are clearest to read when they are subdivided into small units.

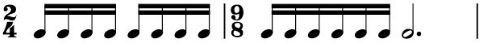
In crotchet and dotted-crotchet metres, separate inner beams into quaver units:



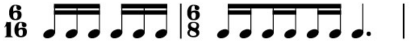
This is much easier to read than when the beams are undivided:



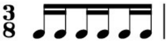
Groups of semiquavers are not usually separated into quaver units:



except in a dotted-crotchet metre that follows on from a dissimilar beat division:

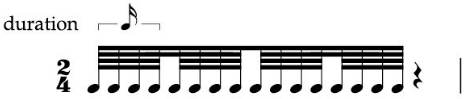


In $\frac{3}{8}$, groups of semiquavers (or shorter note-values) must be separated into quaver units since this is a three-beat metre:

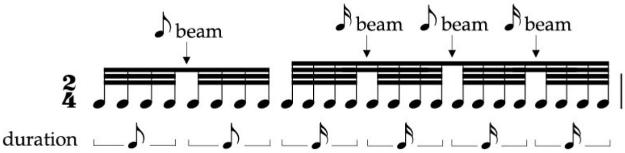


SUBDIVISIONS WITHIN A QUAVER UNIT

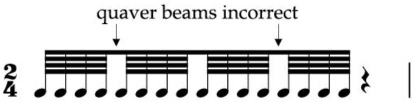
For clarity, groups of short note-values should divide into semiquaver units:



The number of beams separating the groups is equal to the duration of the groups they separate:

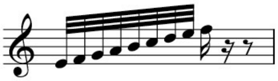


In other words, semiquaver beams must join groups that add up to the value of a semiquaver – it is incorrect for only a quaver beam to do this:



SCALE PASSAGES

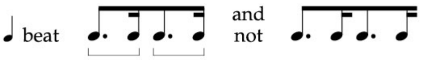
It is acceptable for beams to remain undivided, to show that there should be no internal stresses (although the rhythm will be harder to read when there are, say, twelve or more notes):



(See also *Beaming to reflect musical structure*, p. 169.)

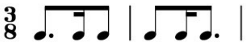
Fractional beams

A note-value that is only a fraction of a beat takes a fractional beam. This beam points in the direction of the beat or division of the beat to which it belongs:

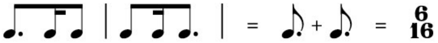


(For fractional beam design, see p. 17.)

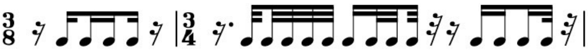
In $\frac{3}{8}$ and in compound-time dotted-crotchet metres (e.g. $\frac{6}{8}$), a fractional beam that is part of a second quaver must point in the direction of the second quaver:



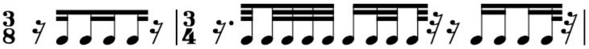
Reversing the beam indicates that the semiquaver belongs to a dotted-quaver beat:



Fractional beams point away from a rest so as to stay inside the main beam. They should remain separate from their neighbouring inner beams in order to show that they are a fraction of a beat only:



It is equally acceptable to point beams towards the rests, to clarify the metrical grouping:



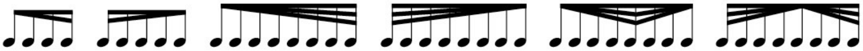
Alternatively, beams may be extended across rests, to occupy whole beats (see *Extending beams to cover whole beats*, p. 165).

Beamed groups indicating variation in speed

A group with fanned beams indicates free accelerando or rallentando within the duration of a group of notes.

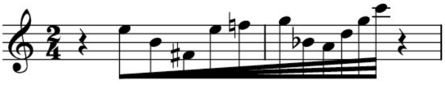
The group uses two or three beams at its fastest point; the beams converge at the slowest point:

(a)



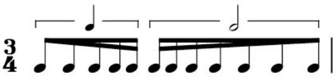
Such beams may extend across a barline:

(b)



If it is necessary to indicate the duration of the group, place a small note-value over the group, enclosed within a square bracket:

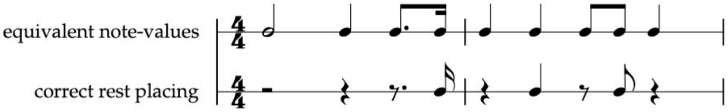
(c)



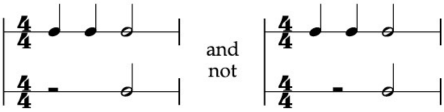
The notes of the group may either be spaced evenly (as in (a), above), or else spaced proportionally to their speed: i.e. the slower notes are spaced further apart than the faster ones ((b) and (c), above).

Horizontal position of rests

Position a rest exactly as if it were a note of the equivalent duration:

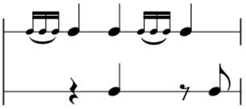


A rest is always placed at the start of its duration, never in the centre of a beat:



The only exception is for whole-bar rests (see below).

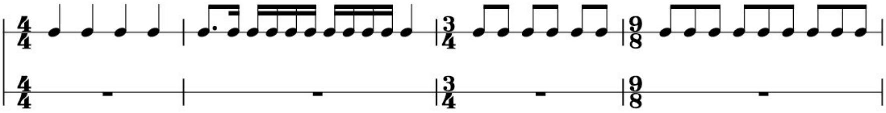
When another part contains grace notes, rests align with the measured note:



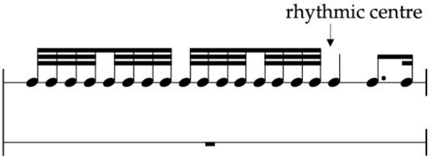
(For placing rests on and around the stave, see *Vertical placing of rests within the stave*, p. 35.)

Whole-bar rests

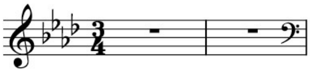
The semibreve rest is placed at the visual centre of the bar, or immediately to the left of a central duration. When the bar has evenly spaced beats, the rest will come just before the middle note-value:



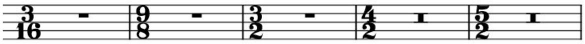
Even when the middle rhythmic point is far off-centre, the whole-bar rest goes at the visual centre of the bar:



When the rest bar contains a clef, key signature or time signature, place the rest at the centre of the remaining blank space:



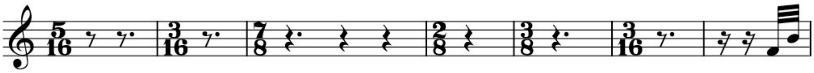
The semibreve rest acts as a whole-bar rest in any time signature (but see below). For all time signatures of $\genfrac{}{}{0pt}{}{4}{2}$ or $\genfrac{}{}{0pt}{}{8}{4}$ and over, the breve rest represents a whole-bar rest:



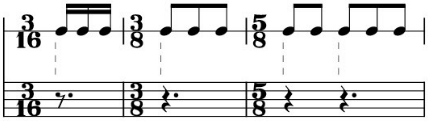
Place a semibreve rest at the beginning of its duration when it represents the sum of four crotchet rests, e.g. for a half-bar of $\genfrac{}{}{0pt}{}{4}{2}$.

ALTERNATIVE NOTATION: RESTS TAILORED TO THE METRE

The value of the actual rest in the respective time signature may be used on a one-off or occasional basis. For example, in music of rhythmically complex and constantly changing metres, this may help a performer to read at speed:



Align each rest as if it were its equivalent note-value:



(See also *Metres of variable stress*, p. 178.)

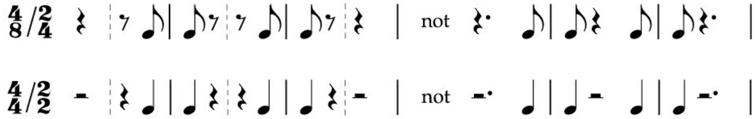
When the metrical patterns are not complex, this notation tends to look unnecessarily fussy. The established convention of using semibreves for all rests means that they are automatically read in combination with a time signature, making rest symbols for individual bar lengths redundant.

Grouping rests according to the metre

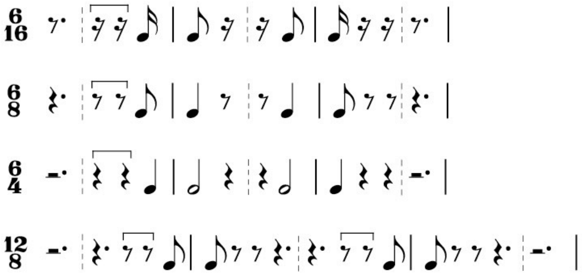
Rests must be grouped to clarify the divisions of the bar. Rests with the duration of one or more beats may start only on a beat.

Rests in metres of two and four beats divide to expose the middle of the bar (marked by dotted lines):

simple time

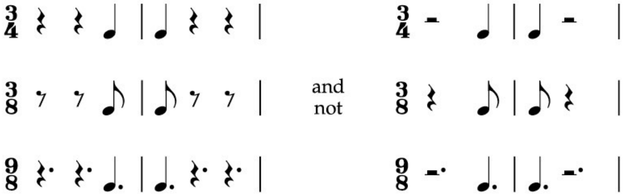


compound time



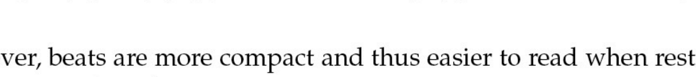
The rests marked ⎴, above, may be amalgamated (see *Compound Time*, p. 163).

In metres of three beats, rests must show all beats (a two-beat rest belongs to a metre of two or four beats):

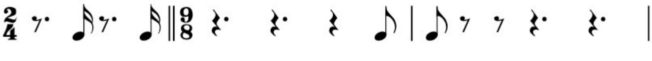


Dotted rests

Older editions do not use dotted rests:

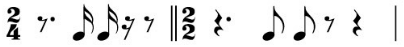


However, beats are more compact and thus easier to read when rests within a beat are combined:

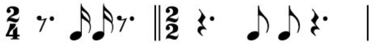


SIMPLE TIME

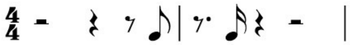
Rests at the beginning and end of beats: the recommended practice is to use dotted rests at the beginning but not at the end of a beat. This visually identifies on which part of the beat the rests fall:



It is acceptable to use dotted rests at both the beginning and the end of a beat, although the visual difference between the types of rest is lost:

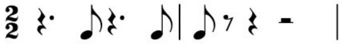


The longest permitted dotted rest is one value smaller than the beat. In crotchet metres, the longest dotted rest is a dotted quaver:



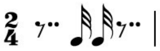
(See also *Double-dotted rests*, below.)

In minim metres, the longest dotted rest is a dotted crotchet:

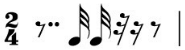


The dotted-minim rest is normally never used in simple time. The only exception is to show units of three crotchets in time signatures such as $\frac{5}{4}$ and also $\frac{7}{4}$ (see *Metres of variable stress*, p. 178).

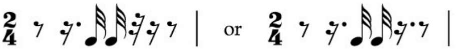
Double-dotted rests: these may replace two or more rests within a beat:



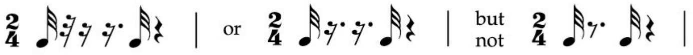
When it is useful to differentiate rests before and after a beat, use the double dotting only at the beginning of a beat:



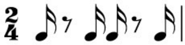
When it is preferable to show more clearly how the beat is divided, divide the rest into half-beats:



Rests in the middle of a beat: these should expose the middle of a beat:



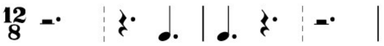
but may be combined when rhythms are straightforward:



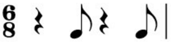
COMPOUND TIME

The dotted rest as a whole beat differentiates compound- from simple-time metres.

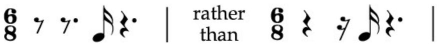
Whole beats may be combined as long as the rests do not obscure the important divisions of the bar (shown by the dotted lines in Table 1, p. 155). Otherwise, no rest should be written across a beat:



Rests within a beat: rests at the beginning of a beat may be combined:

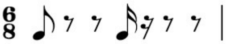


When there are alternative ways of combining rests, it is better to indicate the second rather than the third division of the beat, since this clarifies the divisions more quickly:

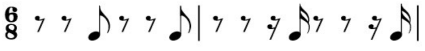


(This same principle applies to note divisions: see *Dividing notes in three-beat and compound-time metres*, p. 168.)

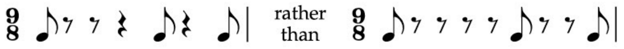
Rests that follow a beat should expose all three divisions:



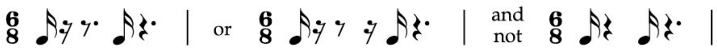
If it is important for a performer to sense all three divisions of an accompanying part, rests at the beginning of the beat should show these:



Otherwise it is better to combine the rests, as this clarifies the position of beats, especially in long bars:



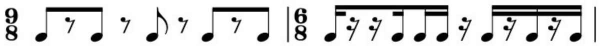
In the middle of a beat, rests must expose at least two of the three divisions. Indicate all three divisions if this is important to the musical sense:



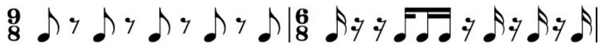
Beaming across rests

It is helpful to beam notes across rests within the beat in order to identify the position of the beats easily. Beats containing rests are grouped in the same way as if the rests were equivalent note-values (see *Beaming according to the metre*, p. 153).

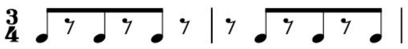
It is very useful to beam together each beat in compound time:



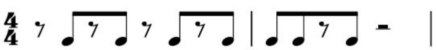
as this is much quicker to read than separate stems:



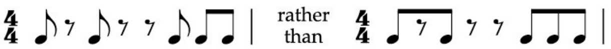
When there are repeated rhythmic patterns of quavers in a crotchet metre, any number of quavers may be beamed together in $\frac{2}{4}$ and $\frac{3}{4}$:



and half-bars beamed together in $\frac{4}{4}$:

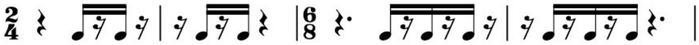


Rhythmic figures that are not part of a repeated pattern may be best beamed into separate beats, so that they are not mistaken for triplets nor for groups of three quavers in compound time:

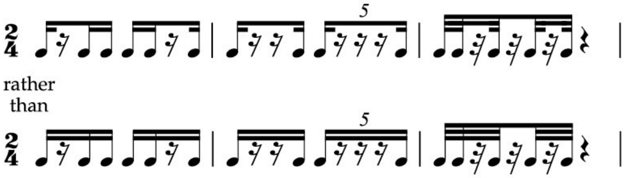


DIVIDING INNER BEAMS FOR RESTS

Inner beams may remain unbroken if equivalent note-values would have unbroken beams:



However, except for the above patterns of alternating notes and rests, inner beams look more elegant separated by the rests:

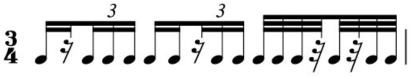


(For positioning rests with beams, see *Beams across rests*, p. 36.)

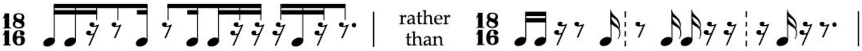
Extending beams to cover whole beats

Beams may extend across rests that start or finish a beat, in order to clarify the position of a beat. Stemlets (stems that stop short of the rest) mark the position of each rest, and inner beams are then extended or attached to these stemlets.

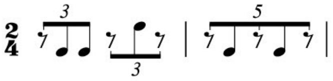
This notation is helpful for passages of complex rhythms, especially where rests occupy the start or finish of a subdivision of a beat, since the extended beams then identify the subdivisions:



Extended beams may replace dotted lines that might otherwise be necessary (or, at the very least, helpful) to delineate beats in long bars of short note-values. This notation is well suited to the rhythmic complexity of such composers as Elliott Carter (see the extract from *A Symphony of Three Orchestras*, p. 517):

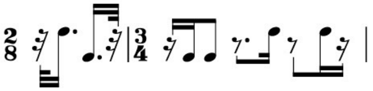


In the case of tuplets, the numeral centres above or below the beam, dispensing with the need for a bracket:



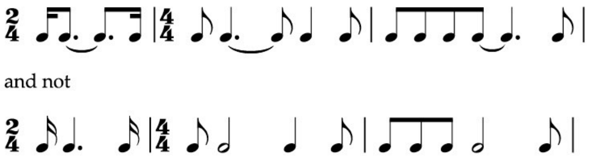
(See *When to use brackets*, p. 199.)

Use extended beams only when it is essential to help the reader to identify the beats. Elsewhere, use traditional beaming, since otherwise the extra notation makes straightforward rhythms look unnecessarily complicated:

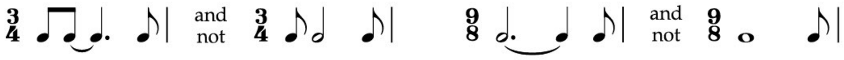


Sustaining notes across beats

Note-values sustained across a beat or half-bar must expose the beat structure of the bar:

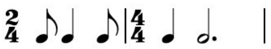


Three-beat metres must show two out of three beats:



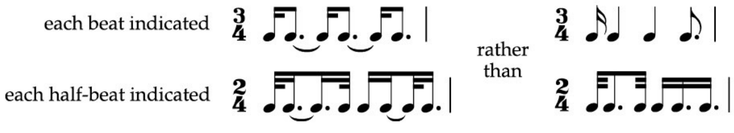
(See also *Dividing notes in three-beat and compound-time metres*, p. 168.)

Only very straightforward rhythms may be written across the beat or half-bar:



(See also *Syncopation*, p. 170.)

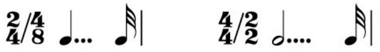
As the division of a bar becomes more complex, it is essential to reveal more of the beats:



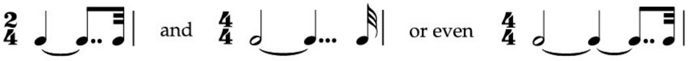
Dividing long notes according to the metre

SIMPLE TIME

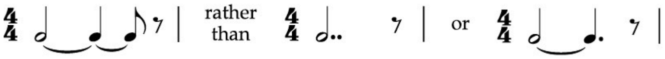
A long duration that starts on the beat may be written as a single note-value:



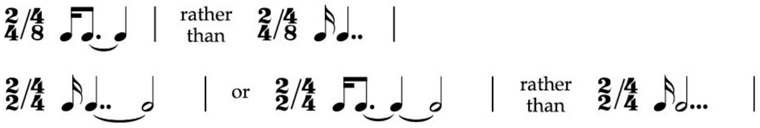
When the rhythms are not part of a regular pattern, the long duration may be divided to expose the beats or half-bar, to make the rhythm easier to count and therefore to place. In $\frac{4}{4}$ it is the third (not the fourth) beat that should be exposed:



Some composers prefer to divide a long note that is followed by a rest into its separate beats, in order to emphasize that the note should be held for its full value:

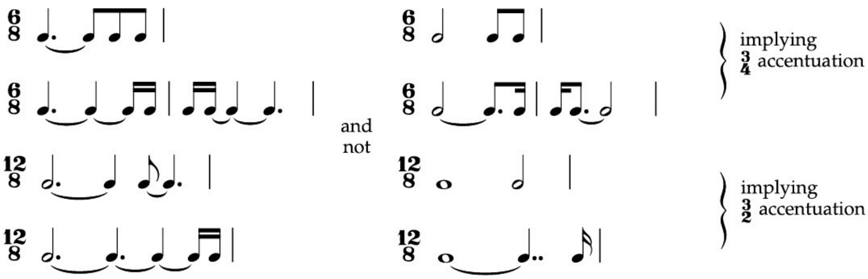

rather than
or

A long duration that starts after the beat is usually divided to show further beats. This helps the placing of the second note:


rather than
or
rather than

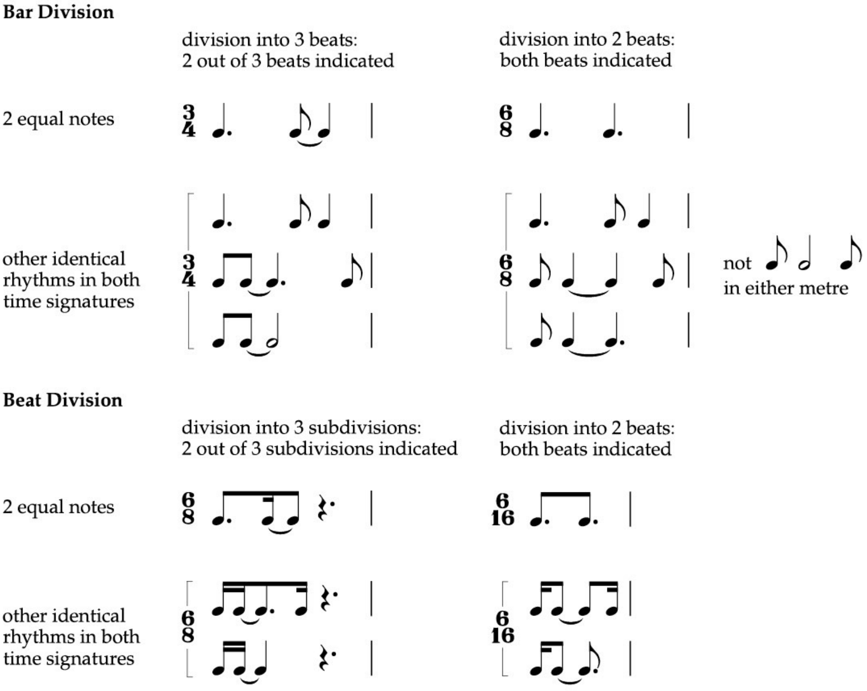
COMPOUND TIME

No note-value should be written across the beat, except combined whole beats:


and not
implying
3/4 accentuation
implying
3/2 accentuation

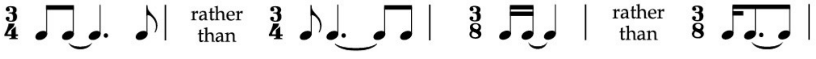
Dividing notes in three-beat and compound-time metres

Metres of three beats must expose at least two. Compound-time metres must show at least two out of three divisions of the beat. Not to do so may imply a different pattern of stresses (see column *Division into 2 beats*, below; see also *Grouping to contradict the metre*, opposite).

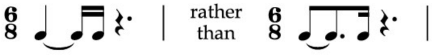

Bar Division
division into 3 beats: 2 out of 3 beats indicated
division into 2 beats: both beats indicated
2 equal notes
other identical rhythms in both time signatures
not
in either metre
Beat Division
division into 3 subdivisions: 2 out of 3 subdivisions indicated
division into 2 beats: both beats indicated
2 equal notes
other identical rhythms in both time signatures

(See also *Compound-time duplet divisions*, p. 204.)

When there is the option to expose either a tied second or third beat (or division of a beat), indicate the second if this most quickly clarifies the structure of the bar:

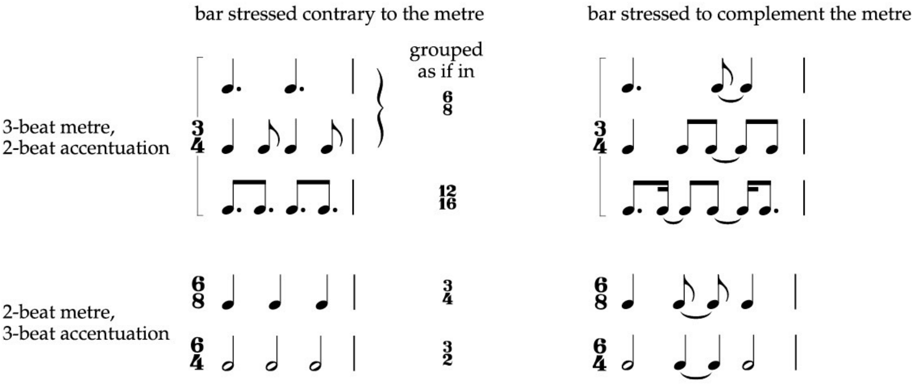

rather than
rather than

Indicate the third beat or division when this makes the rhythm simpler to read:


rather than

GROUPING TO CONTRADICT THE METRE

When the bar is to be stressed contrary to the metre – three-beat metres into two, two-beat metres into three – group the rhythms as if in the opposing metre:

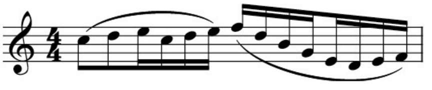

bar stressed contrary to the metre
bar stressed to complement the metre
grouped as if in
6/8
12/16
3/4
3/2
3-beat metre, 2-beat accentuation
2-beat metre, 3-beat accentuation
3/4
6/8
6/4

(See also *Syncopation*, p. 170.)

Beaming to reflect musical structure

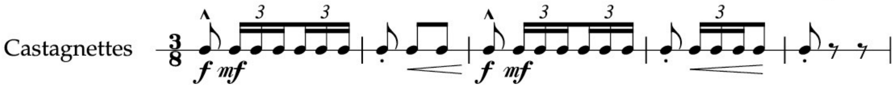
The demands of fast reading are best served when articulation marks alone illustrate the musical structure, leaving the note-grouping to indicate the metre, syncopation or cross rhythm.

Composers have always arranged beaming in unconventional ways, in order to point aspects of the musical structure. They sometimes prefer not to divide beams, to discourage any accentuation of subdivisions within expressive passages (this notation is not recommended):

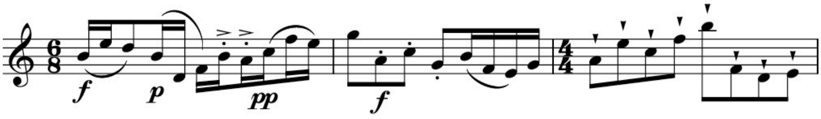


In a different context, a composer may divide a beam to coincide with changes in articulation and dynamics. Only when rhythms are straightforward and bars short might it be beneficial to use such notation:

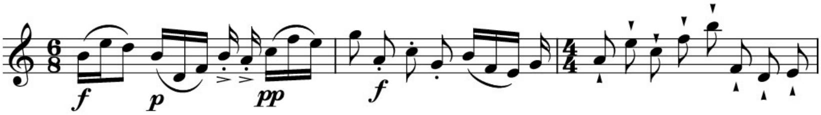
Debussy: *Ibéria*


Castagnettes
3/8
3
3
f
mf
3
3
f
mf
3

To use separate tails to convey the impression of short notes is extremely unhelpful:



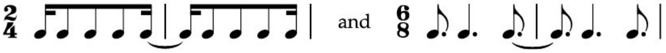
and not



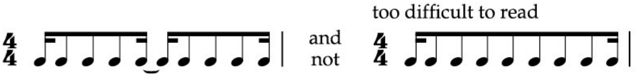
Syncopation

Note-values written across the metre, contradicting normal bar division, express accents superimposed on the basic metre. Note-grouping that contradicts the metre will be read as syncopation. (Examples of this are shown under *Grouping to contradict the metre*, first column, p. 169.)

When accentuation is intended to contradict the basic metre, write note-values across the beats:

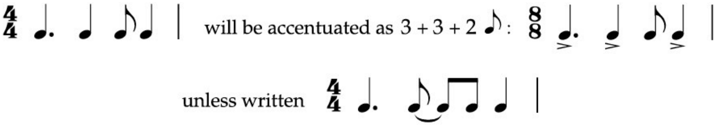


Divide up long bars of short note-values so that the reader does not lose count of the basic metre:

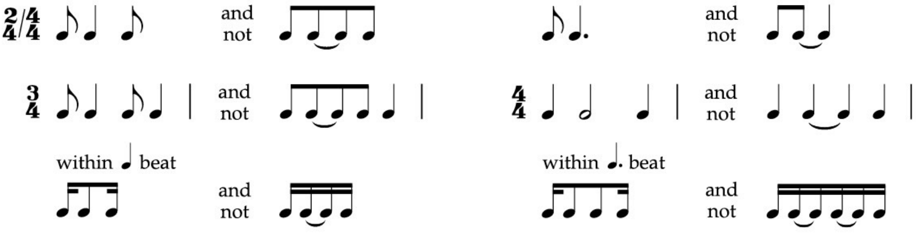


In a slow tempo, the syncopated rhythms may be divided into groups of tied single beats (rhythms notated as shown in first example opposite, lowest line 'within ♩ beat').

Rhythms that should not be syncopated must divide note-values to expose the beats of the bar:



The following common patterns are exceptions and should always be written as follows:

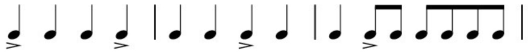


Cross rhythm

Cross rhythm is the shifting of metre across the barline as well as within the bar. It is the imposition of a different metrical grouping without reinstatement of the given metre.

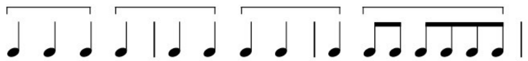
Cross rhythm is used in ensemble music to notate non-coinciding rhythmic stresses. Except in chamber music, it is generally impractical to write simultaneously different bar lengths for different musicians (see *Non-coinciding bar lengths*, p. 175).

For most practical purposes, the marking of stresses counter to the metre is the most helpful notation, as it enables the performer to continue thinking in the written metre and not across it:

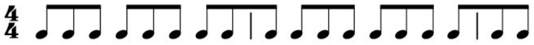


Schoenberg's stress symbols are used for this very purpose (see *Stress symbols introduced by Schoenberg*, p. 115).

Alternatively, square brackets above the stave may show the cross rhythm:



When note-grouping contradicts the metre in order to express the cross rhythm, square brackets or extra accentuation marks are redundant:

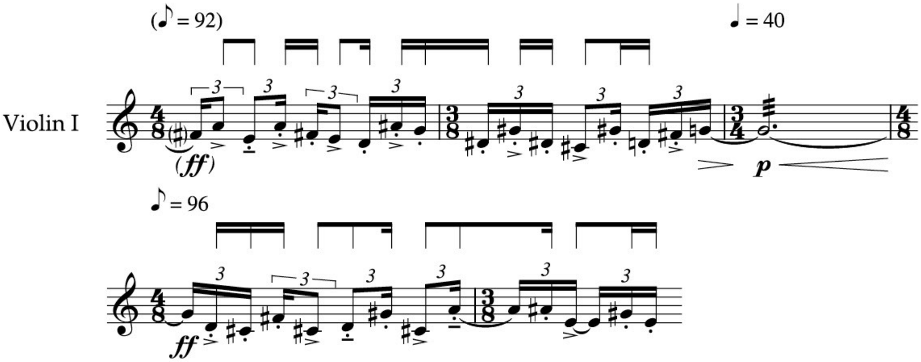


Changing beaming in this way should be used with great care: when the performer is forced to think across the beat it is all too easy to lose count.

(See also *A division of the beat remaining constant*, p. 172.)

Where rhythms are already complex, the rhythms of the superimposed stresses may be notated above the stave, while the rhythmic grouping on the stave conforms to the time signature:

Birtwistle: *Secret Theatre*



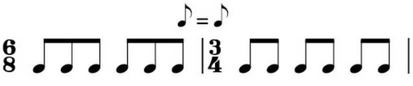
To show a superimposed metre in a complex passage, the cross rhythm may be placed on a line and given the time signature of its true accentuation (see *Rhythmic cue line*, p. 576). Barlines may not necessarily coincide with the instrumental part. The chamber music of Elliott Carter provides many instances of this notation (see, for instance, String Quartets Nos. 1–3).

Interchanging simple- and compound-time metres

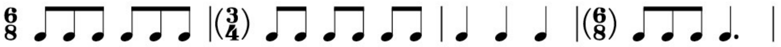
It must be quite clear whether it is a division of the beat or the whole beat that remains constant.

A division of the beat remaining constant

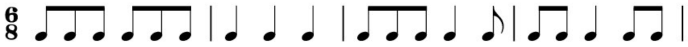
To indicate the relationship between the two metres, state the equivalent note-values (i.e. the metric equation) over the barline at the first appearance:



Alternatively, for bars that contradict the prevailing metre, add a time signature in brackets appropriate for the accentuation. Restate the initial metre where relevant. It is unnecessary to state the note-value equation as well, as the brackets surrounding a time signature always mean that the bar has the duration of the previous metre:



When rhythms are straightforward, it is sufficient for the note-grouping to indicate the cross rhythm without spelling out the additional metre:

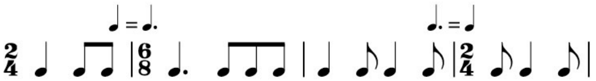


The beat remaining constant

When the beat is to remain constant, simple- and compound-time metres may be interchanged in order to save writing triplets in simple time, duplets and quadruplets, and so on, in compound time. The ratio of compound- to simple-time metre is 3:2:

	compound time			simple time		ratio
2-beat metres	6/4	(𝅗𝅥. beat)	=	2/2	(𝅗𝅥 beat)	3:2 ♩
	6/8	(♩. beat)	=	2/4	(♩ beat)	3:2 ♪
3-beat metre	9/16	(♪. beat)	=	3/8	(♪ beat)	3:2 𝅘𝅥𝅯

Indicate the relationship between the metres as a note-value equation over the barline at the first exchange both to and from the different time signature:

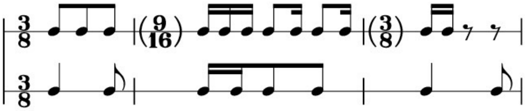


(See also *Tempo equations*, p. 185.)

CONCURRENT SIMPLE- AND COMPOUND-TIME METRES

Different metres may be used simultaneously on different staves of a score or in a two-stave part. Notate the passage initially in the most prevalent metre, and change the time signature for a stave as required. Place brackets around the time-signature changes, both to and from the less prevalent time signature, to indicate that this is not common to all parts.

In a score, after a barline allow space in all parts for the addition of the alternative time signature. (The following is an example of extreme compression: it would not normally be worthwhile changing the time signature for less than several bars.)

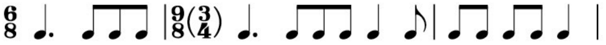


DUAL TIME SIGNATURES (INTERCHANGEABLE METRES)

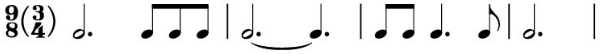
Use two time signatures for passages that interchange equivalent-beat simple- and compound-time metres either irregularly or simultaneously. Indicate both time signatures at the outset:

$\frac{2}{4}(\frac{6}{8})$ or $\frac{2}{4}/\frac{6}{8}$ or $\frac{2}{4}=\frac{6}{8}$

Notate each bar according to the most appropriate metre. When the dual time signatures follow on from another metre, the time signature placed first is the one with the same written beat as the previous metre:



Notate whole-bar notes in the prevailing metre:



Note that the statement of interchanging metres such as $\frac{2}{4}(\frac{6}{8})$ is not the same as $\frac{2}{4}+\frac{6}{8}$, which is a strict alternation of the two metres (see *Mixed metres (Alternating time signatures)*, p. 179).

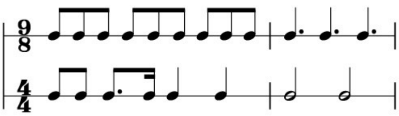
Polymetre

Any number of simultaneous metres may be used for different parts. Allocate specific time signatures for individual staves as required.

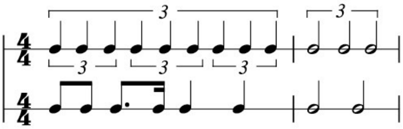
Simultaneous metres must follow correct rhythmic alignment (see *Vertical alignment*, p. 490). Align equivalent beats (where these occur), and place non-equivalent beats according to their correct relationships to other note-values.

Coinciding barlines

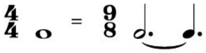
If practical, different time signatures in different parts can simplify the notation of complex rhythmic relationships:



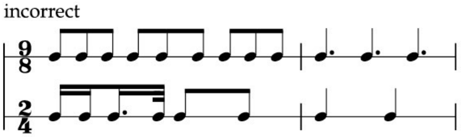
rather than



In the previous example the equivalent note-value ratio is 9:8 quavers. It is helpful to define this metrical relationship at the outset of the polymetre (place it above the top stave):

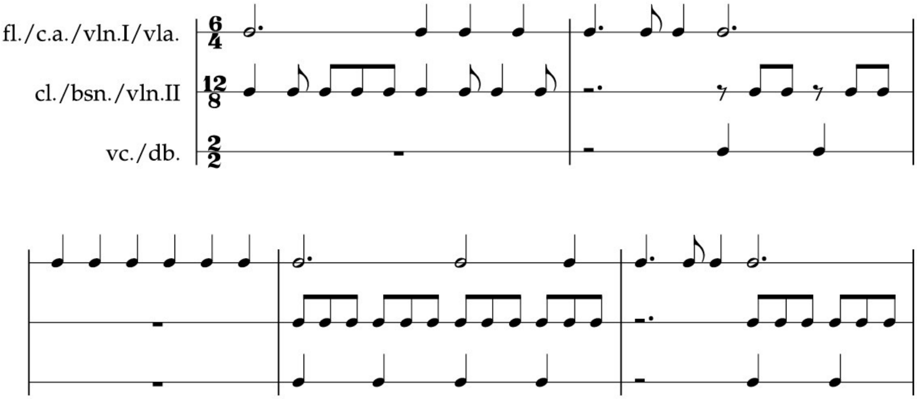


Select the closest metrical equivalent in duration, in this case 9:8 quavers – so that the note-values of the different metres are as close in duration as they can be – not, for example, 9:4 quavers:



The following concurrent time signatures occur in Vaughan Williams's Sixth Symphony. The $\begin{smallmatrix}2\\2\end{smallmatrix}$ functions as both a two-beat metre with the $\begin{smallmatrix}6\\4\end{smallmatrix}$ and a four-beat metre with the $\begin{smallmatrix}12\\8\end{smallmatrix}$:

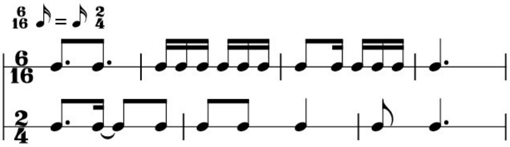
Rhythmic breakdown of Vaughan Williams: Symphony No. 6, first movement, fig. 8



Non-coinciding bar lengths

The true metrical stress of individual parts may be expressed as independent metres, to result in non-coinciding bar lengths. This may replace the notation of cross rhythm (see *Cross rhythm*, p. 171), but is generally impractical except in chamber music.

Where possible, select metres that share a common beat or common division of the beat. Thus, in a score, the common value can be vertically aligned:


6/16 ♪ = ♪ 2/4
6/16
2/4

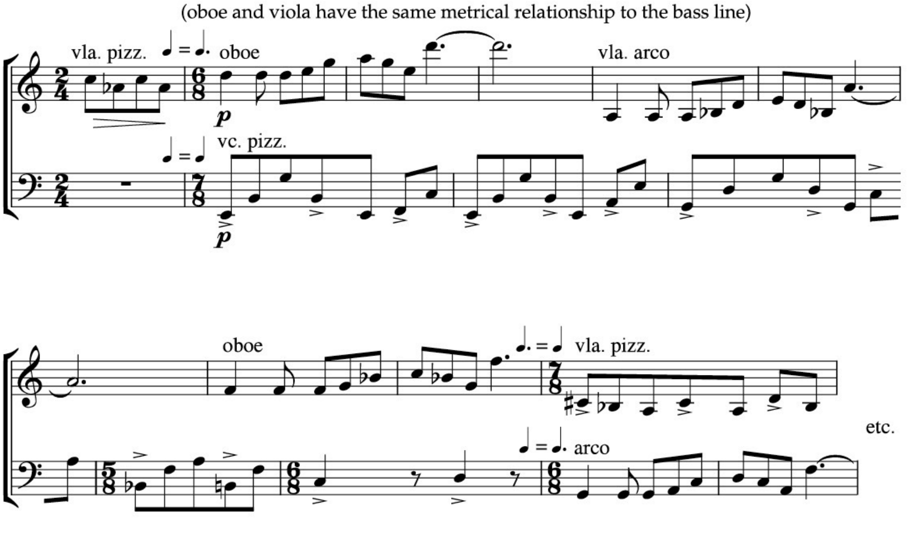
(This is also the case in Ravel's Piano Trio – see example, p. 576.)

When a note aligns with the first beat of a bar in another part, the rhythmic values should align with each other, and not with a barline.

When note-values between parts are not equivalent, it is important to define the relationships of the different parts. When the polymetre occurs at the outset, indicate the note-value equation as in the example above.

When the polymetre starts after the beginning of the piece, define metrical relationships with surrounding metres at the points of divergence and convergence. The following condensed section of score (violin parts omitted) shows the concurrent metres and how to indicate them:

Bliss: Oboe Quintet


(oboe and viola have the same metrical relationship to the bass line)
vla. pizz.
oboe
p
vla. arco
vc. pizz.
p
oboe
vla. pizz.
etc.
arco

RHYTHMIC RELATIONSHIP GRID

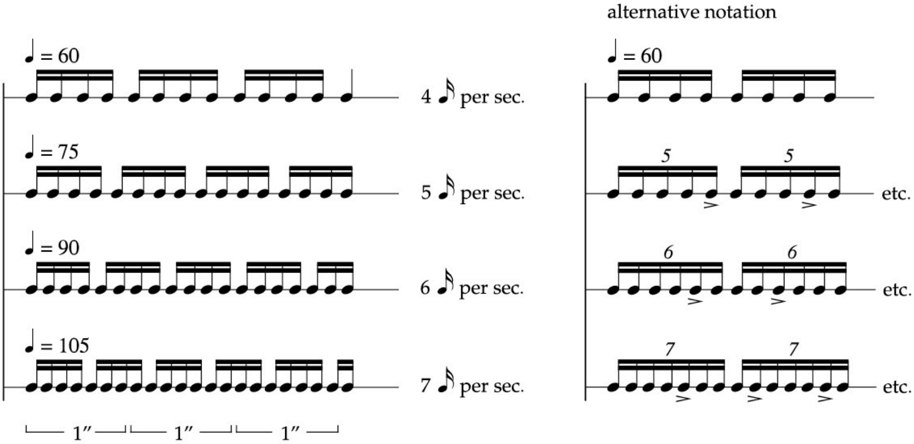
Where the relationship between metres is complex, it may be essential to clarify how the different metres coincide. In a score, it may be helpful to provide a rhythmic grid (a cue line of rhythm) to show how the conductor's beats (or beats of the majority of the ensemble) relate to the differing metre (see *Rhythmic cue line*, p. 576). Notate the conductor's (or ensemble's) beats in the opposing metre (see, for example, Adès, *Asyla*, Ecstasio, Letter L; Maxwell Davies's *Hymn to St Magnus*, Letter S ff also uses a rhythmic grid to show how the parts co-ordinate).

Likewise provide this rhythm cue in the parts of players who play in a different metre from the more prevalent one: these players need to measure their music against the prevalent metre (see example under *Non-coinciding barlines*, p. 578, as to how a cue would be laid out. Conductor beats, given as note-values for the relevant beats, would be added to the 'orchestra metre' cue line).

Where helpful, the rhythmic grid should notate the rhythms of the other player(s) in the metre of the relevant player's part (see, for example, Adès, Piano Quintet, Fig. 11 ff.).

Parts in different tempi (Poly-tempo)

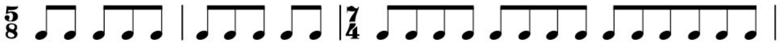
The use of simultaneous different tempi may be required to be co-ordinated (e.g. by a second conductor, a click-track, or by the players themselves) or else not precisely co-ordinated. When there are equivalent ratios between tempi, a score should rhythmically align the parts according to these ratios. In the following table the tempi have the exact ratio 4:5:6:7. The second column gives an alternative notation in a single metre, which would be the traditional way of indicating these tempo relationships:



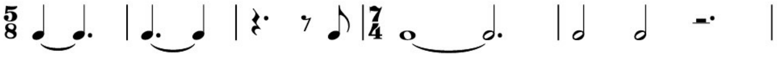
Whether or not the different tempi form precise ratios, a score should align parts as precisely as possible (see, for example, Stockhausen's *Gruppen*). Where exact co-ordination is not required, the result may not be precisely the same from one performance to the next; the score will, however, present one possible sequence of events (see, for instance, Boulez's *Rituel: in memoriam Bruno Maderna*). The layout principles are the same as when an individual part is completely independent (see *Independent parts within an ensemble*, p. 613; for part preparation, see *Non-coinciding barlines*, p. 577).

Metres of variable stress

Where possible, bar division is indicated by beam grouping:



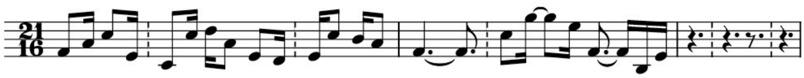
or by the particular division of longer notes and rests:



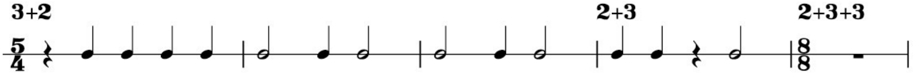
(See also Table 1, p. 155.)

Otherwise, divide bars by adding dotted barlines. In a score place these through each instrumental section individually (as with ordinary barlines). They may be omitted through *tacet* instrumental sections. In an instrumental part (but not a score), divide rests in a rest bar to show the bar division (see next example, last bar).

In an instrumental part, dotted barlines are very helpful, especially in complex music or long bars, since the player may well mark in the divisions of the bar in any case. Use dotted barlines in rest bars only where division would otherwise be unclear:

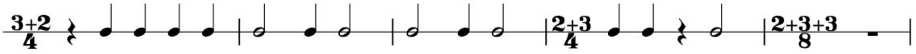


Indicating the numerical divisions of the bar is the most economical notation in less complex music. This is especially useful when a division remains unchanged, since numerical division holds good until contradicted. Place the numerals at the beginning of the bar – they may be bracketed or not:

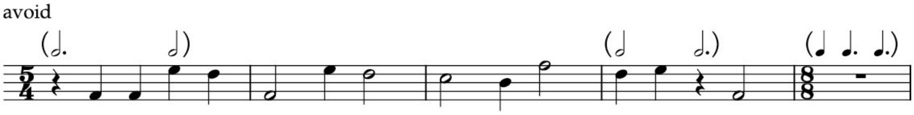


Adding up the beats is likely to trip a player up in rehearsal, and so should be avoided:

not recommended

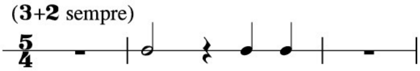


It is best not to use small notes over the relevant beats – reserve notes for playing wherever possible:



Conductor beat symbols | ⊓ △ (meaning one, two and three beats) are best avoided as well. Conductors always prefer to write in their own markings in a score, and, in parts, bar division is better expressed in one of the ways shown above.

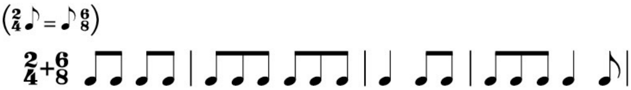
When the division of a metre remains unchanged throughout, this may be indicated at the outset:



Mixed metres (Alternating time signatures)

A fixed pattern of alternating metres may be notated where bars of different duration alternate (as opposed to interchanging compound- and simple-time – see *Interchanging simple- and compound-time metres*, p. 172). Place the two (or more) time signatures at the start, with a '+' sign between each.

It is permissible to notate each metre as a separate bar:



However, it is more common to treat the pattern of alternating time signatures as single bars and to separate each metre with a dotted barline, if necessary (as in *Metres of mixed denominators* – see p. 180).

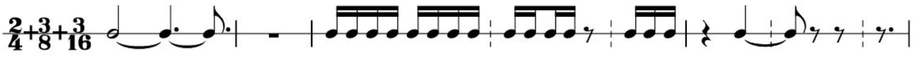
When metres alternate irregularly, place both time signatures at the outset, with a hyphen between them, for clarity: $\frac{2}{4}$–$\frac{3}{4}$

This notation is useful in chamber music, to save writing in the many alternating time signatures, although in conducted music it is better to have each time signature where required. In individual parts, rest bars will require the relevant time signature – since the player will otherwise have no indication of bar length.

Metres of mixed denominators

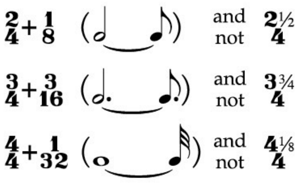
A fixed pattern of alternating time signatures may consist of groups that require different denominators. Between the different time signatures, any single duration is taken to be equal, i.e. the smallest unit (the semiquaver in the example below) is the same duration for all the time signatures indicated.

Each section of the bar must conform to its appropriate time signature so as to clarify the bar division. Dotted barlines may separate the different portions of the bar where this is helpful (bar 3–4):



Time signatures with numerators as fractions

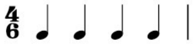
Time signatures with numerators as fractions (i.e. a fraction of a beat) are an unnecessarily obscure notation. Instead, notate half-, quarter- and eighth-beats as metres of mixed denominators:



All other fractions may be notated with a denominator that is a division of the semibreve.

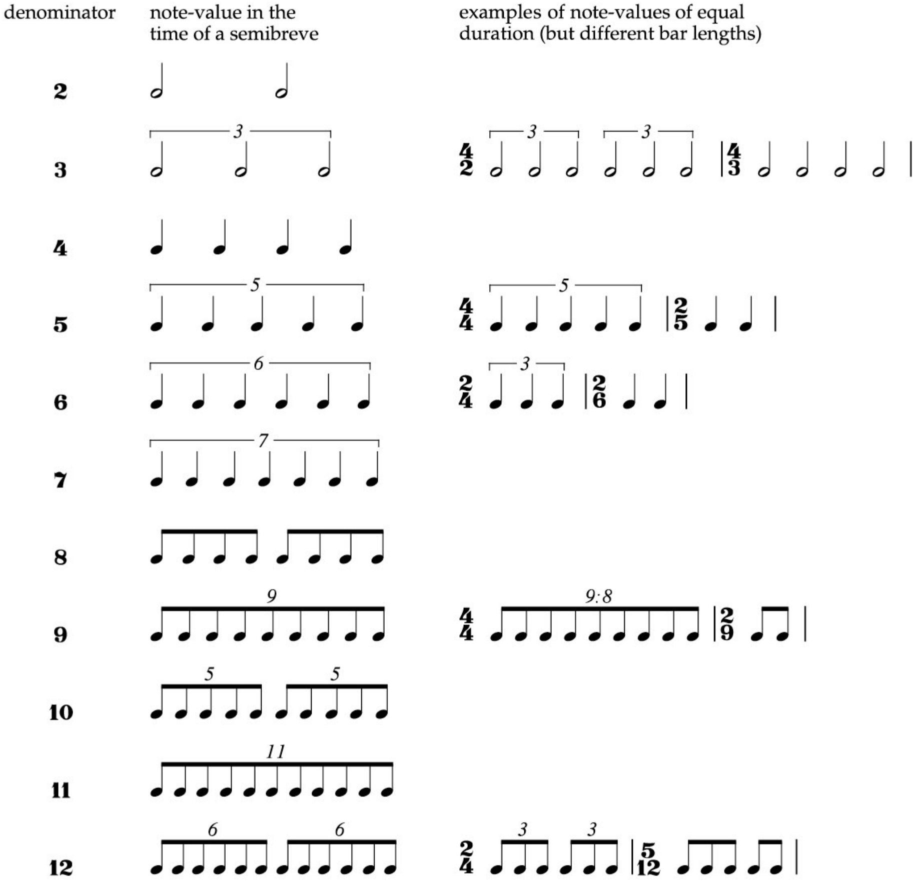
Denominator as any division of the semibreve

Since the denominator is the division of the semibreve into equal parts, it may represent any number of equal divisions of the semibreve, not just the traditional multiples of two. For example, in $\frac{4}{6}$, the semibreve is divided into six parts to provide a note-value (triplet crotchets) of which there are four:



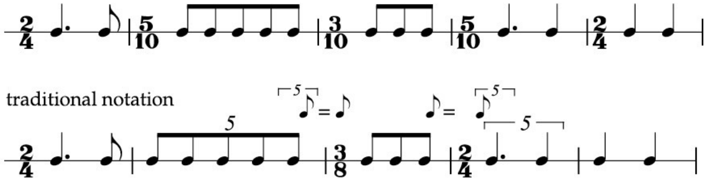
Thus this notation may define differing bar lengths that would otherwise require a tempo equation for every time signature change:

TABLE 2: Denominators


denominator
note-value in the time of a semibreve
examples of note-values of equal duration (but different bar lengths)
2
3
4
5
6
7
8
9
10
11
12
3
4/2
4/3
5
4/4
2/5
6
2/4
2/6
7
9
9:8
4/4
2/9
5
5
11
6
6
2/4
3
3
5/12

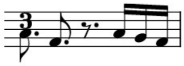
The decision as to whether to use these unconventional time signatures will depend on context. Where they are unfamiliar and are required only for a few bars, introducing them may cause unnecessary difficulty.

For performers unlikely to be familiar with the notation, provide an explanatory note such as '$\frac{5}{10}$ = a bar of five beats, each of which is 1/10 of a semibreve'.

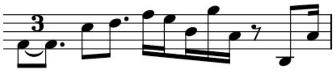

2/4
5/10
3/10
5/10
2/4
traditional notation
5
5
5
5
2/4
3/8
2/4

Denominator as notehead

To substitute a note-value for a denominator numeral is usually best avoided so as not to confuse the time signature with a note-value to be sounded:



A notehead used for an unconventional denominator:



is written equally efficiently as the conventional $\frac{15}{16}$ with (**2**+**3** sempre) indicated above the first bar.

Tempo indications

Design

Tempo indications are printed in bold roman type and are usually larger than other text so as to be very conspicuous. The only exception is when a *rubato* marking such as *accel.* or *rall.* refers to a single line (e.g. a soloistic passage in an ensemble piece) and is not a general tempo change for the whole ensemble. Such an indication uses small italic type, as an expression mark would (see *Text typefaces in the music*, p. 492).

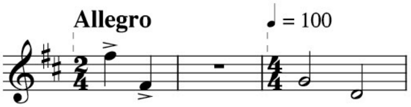
Older scores use small italic type for general indication of gradual tempo change (*accel.*, *rall.*, etc.), but italic should be reserved for expression marks, and not used in this context.

New (established) tempi have initial capitals; temporary indications (*allargando*, *accel.*, *rall.*, etc.) do not.

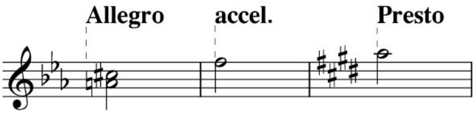
Placing

Place all tempo indications above the uppermost stave, and above all other performance instructions. They should be well clear of slurs, octave signs and articulation. In orchestral and ensemble full scores, tempi are usually repeated lower down the score (see *Placing tempo and rehearsal marks*, p. 520; also, *Playing score: layout*, p. 539).

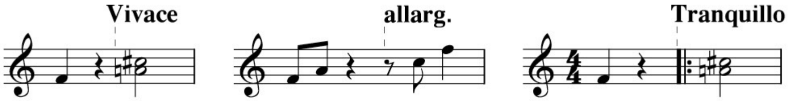
When a tempo marking coincides with a time signature indication, align the tempo with the left edge of the time signature:


Allegro
♩ = 100

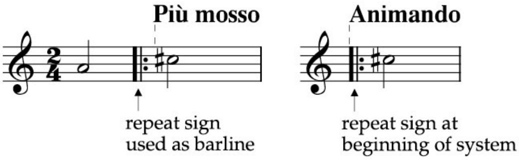
When there is no new time signature, align the tempo marking with the first element of the notation (e.g. a note or accidental) after the clef and key signature. Note that when the tempo change is at the start of the bar, the marking is not placed on the barline:


Allegro
accel.
Presto

Tempo indications mid-bar also align with the first notational element of the respective beat:


Vivace
allarg.
Tranquillo

When a repeat sign acts as a barline, the tempo aligns with the following first element of the notation. When the repeat sign is not acting as a barline, the tempo aligns with it:


Più mosso
Animando
repeat sign used as barline
repeat sign at beginning of system

METRONOME MARKINGS

A metronome marking may be given alone as a tempo indication. Otherwise it follows the tempo indication. It requires brackets only to confirm a current or previously stated tempo, e.g. **Tempo I** (♩ = 56), or to clarify a tempo equation, e.g.:

←♪. = ♩→ (♩ = 100)

(See also *Tempo equations*, p. 185.)

Tempo Primo and Tempo Secondo

A return to an opening tempo is marked *Tempo Primo* (abbrev. *Tempo I°/ Tempo I*). A return to a second tempo is marked *Tempo Secondo* (abbrev. *Tempo 2ndo/Tempo II*). (These tempo markings would be in bold type.)

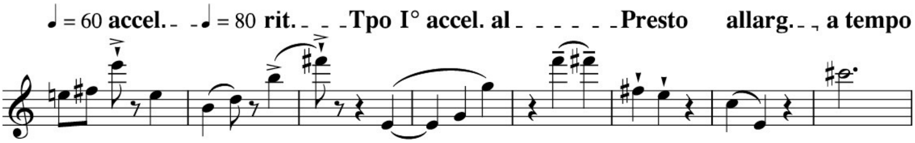
Confirm each tempo in brackets, at least the first time the terms are used, especially when there have been intervening tempi: it must be clear which tempo is being referred to. For example, **Tempo II (Vivace (♩ = 96))**.

Tempo alteration markings

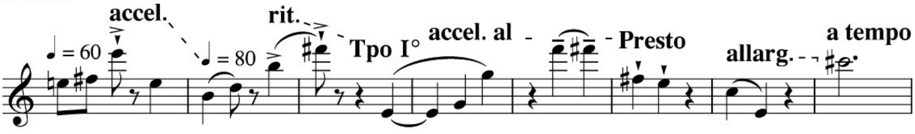
HORIZONTAL ALIGNMENT

It is standard practice to place each marking a small distance above all other information on the uppermost stave. It is helpful if two or more markings on the same system can be aligned, as they can be clearly seen to relate to one another. However, it is more important that each marking is more or less a consistent height above the notation, remaining close to the music, so that tempi do not become isolated from their content, and so that they are not overlooked (see flute example, p. 570).

A fluctuating tempo instruction may be clarified with horizontal dashes up to a new tempo. Such lines should remain horizontal and not be angled:

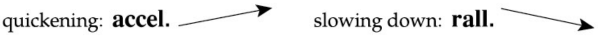

♩ = 60 accel. - - ♩ = 80 rit. - - - Tpo I° accel. al - - - - - - Presto allarg. - - a tempo

and not



GRAPHICALLY NOTATED GRADUAL TEMPO CHANGE

A slanted arrow is sometimes used to emphasize or replace changing tempo indications:



However, there is little need for this extra notation when a perfectly clear method already exists. Conductors and performers prefer to mark such indications in their own ways.

INDICATING CONTINUING TEMPO CHANGE

To alert the reader to a continuing tempo alteration, repeat the marking in brackets at the start of each system, e.g. (*accel. sempre*). In addition, or instead, use horizontal dashes to the new tempo marking.

TERMINATING TEMPO CHANGE BEFORE THE NEXT TEMPO

When a new tempo marking is not a consequence of the tempo alteration, place a vertical notch at the end of the dashes:

♩ = 60 **accel.** _ _ ¬ **a tempo** (♩ = 60)

Instead, or as well, indicate with *subito* that the new tempo is significantly different:

♪ = 126 **poco accel.** _ _ _ ¬ ♪ = 192 **subito**

Tempo equations

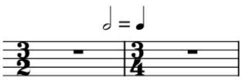
Tempo equations indicate where there is a direct relationship between note-values at a tempo change.

Cue-sized notes above the stave indicate note-value equivalents between tempi. They must be carefully placed so as not to be ambiguous.

Traditionally before about the 1950s, a note-value equation appeared after the barline of the new tempo. For example, ♩ = 𝅗𝅥 or, more explicitly ♩ = 𝅗𝅥 **precedente** ('preceding'), meant that the new note-value (♩) was equal to the former note-value (𝅗𝅥).

It is best not to use this arrangement now, since contemporary practice reverses the equation (following the 'metric modulation' notation invented by Elliott Carter). The traditional equation has become ambiguous as to which note-value refers to which tempo.

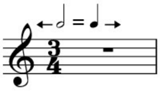
Instead, centre the '=' sign of the equation over the barline, so that each note-value is clearly related to the tempo of the bar above which it is placed:



Although not strictly necessary, the addition of arrows clarifies the equation and more conspicuously separates the equation from the musical text:

← 𝅗𝅥 = ♩ →

When it is necessary to move the equation after the barline (e.g. at the beginning of a system or after a tempo change instruction), the arrows confirm which note-value belongs to which tempo:

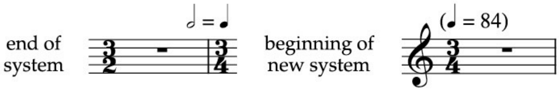


Identical equivalent durations are also expressed as an equation: ♪ = ♪, or else with a single note-value over the barline with an arrow in the direction of each tempo: ← ♪ →

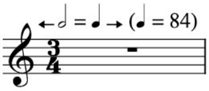
(See extract from Carter's *A Symphony of Three Orchestras*, p. 517.)

OVER A SYSTEM BREAK

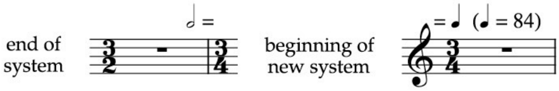
An equation is best placed before the end of the first system, i.e. in advance of the tempo change. Confirmation of the new tempo on the new system may be helpful:



Where more convenient, the equation may be placed on the new system:

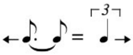


or else it may be divided between the systems:

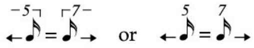


Complex metric equations

Complex ratios may require tied note-values or tuplet indications:



When the relationship between the tempi can only be expressed as a ratio: e.g. 5 ♪ = 7 ♪, place a tuplet indication over the cue-sized notehead (tuplet brackets may be closed – see previous example – or open-ended, as below):



For clarity, confirm these complex equations by placing a new metronome marking after the equation.

Pauses

Break in sound

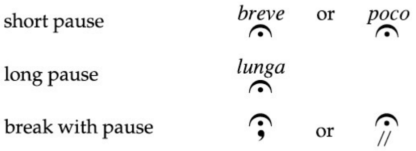
The comma (′) or diagonal-stroked caesura // indicates that a note is sustained for its full value, then extra time allotted for a short break in sound. The comma rather than the caesura is now more commonly used. (See also *Vocal music: Phrasing and breathing points*, p. 436; the caesura is also used to show damping – see p. 291.)

The comma usually indicates a very short break. The caesura may indicate a slightly longer break (but shorter than a pause), usually at the end of a section. For a break at the end of a bar, a pause over the barline fulfils the same function as a caesura. Both the comma and caesura may be extended with pauses (as shown under *Pause duration*, below).

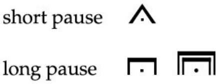
Place the comma and caesura just before a subsequent note or barline. The diagonal strokes of the caesura may be up to half a beam width in thickness. The strokes are placed on the second stave-line down, extending upwards to the position of a first ledger line above the stave. In a score, the comma, caesura and pause over a barline should appear at the top of each instrumental section only (so as not to be intersected by a barline). When not over a barline, place the symbols above every stave.

Pause duration

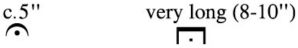
Pauses add duration of non-specific value to the symbol above which they are placed. They may be indicated in the following ways:



Pauses of different relative duration may be defined with different symbols. These must be qualified, as they do not have standard definitions. For example:



A pause duration may be indicated in seconds over the sign:



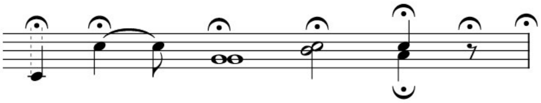
An indication of *a tempo* is required after a pause only when a tempo change has preceded it.

The indication *tenuto* (abbrev. *ten.*) indicates that a note should be held for its full written value. This usually implies a degree of emphasis, sometimes resulting in a brief pause. It requires no subsequent tempo clarification or *a tempo* marking.

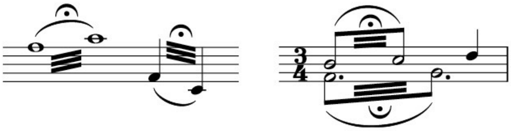
Design and placing

The standard arc-shaped pause sign (Italian: *fermata*) is about one stave-space high, and two spaces wide (about the width of a ledger line).

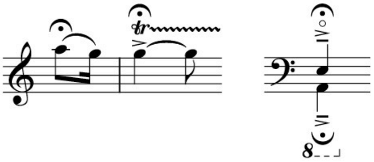
The arc of the pause centres on the notehead (regardless of stem direction), rest or barline. When there are unison or adjacent notes, the pause centres on the note that is on the 'correct' side of the stem:



Always place the pause above the stave, except in double-stemmed writing (see below). It centres outside the tremolo beams of a two-note tremolo:

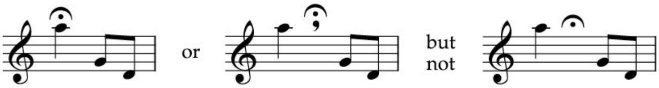


Place the pause further from the stave than other markings stacked on the notehead, except for the octave sign:



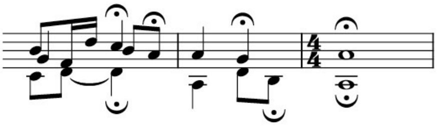
Mid-phrase, a pause is positioned inside a slur (as in the second two-note tremolo example opposite).

A pause must be positioned directly over a note, tremolo beam (as above), rest, barline, or sign indicating a break in sound such as a comma or caesura. Any other placing is ambiguous:



DOUBLE-STEMMED WRITING

Each separately stemmed part on a stave takes a pause. A lower part takes an inverted pause:

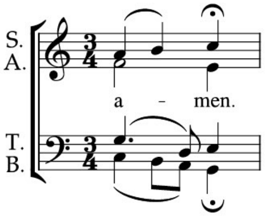


BRACED PART ON TWO STAVES

Although, traditionally, a single pause is often placed below a note on the lower stave regardless of its stem direction, it is more usual to place the pause above the stave (see harp example, *Playing part*, p. 524).

CHORAL WRITING WITH TWO VOICES ON A STAVE

Pauses may be indicated only for the outer voices, should the pause signs for the inner voices otherwise conflict with a single, centred text:



PAUSES IN SCORE AND PARTS

The beat or subdivision on which the pause falls must agree in all parts of a score (see example under *Double-stemmed writing*, p. 189).

Since a player has only his or her own part, a long note or rest in a leading (or 'busy') part may be subdivided to indicate the precise beat or subdivision on which the pause falls. (The player would otherwise need to refer to a score.) Accompanying parts may not require this precise information, since the players will hold a pause on an existing note-value until the conductor or leader cues them (see solo horn part in *Sample score layout*, Table 9, p. 547).

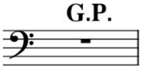
Score and parts should agree as to whether notes or rests are subdivided to show the exact placing of the pause. Thus the conductor can see from the score the information that each part has.

Cadenzas and free passages often take pauses in accompanying or *tacet* parts (see *Cadenzas and solo ad libitum passages*, p. 610).

(For the use of Britten's Curlew sign, see *Moving on into a metre*, p. 612.)

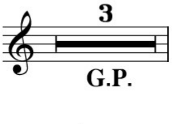
Silent bars (G.P.)

'G.P.' ('General Pause') is used in ensemble music to indicate silence of a bar (or more) for the whole ensemble. One silent bar measured in strict time is marked *G.P.*:

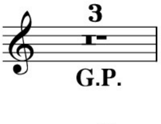


This is occasionally indicated (in the same place in the bar) as *vuota* ('empty').

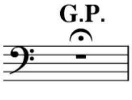
Multiple rests (see p. 564) represent two or more silent bars:



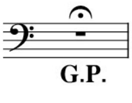
or



A silent bar with a pause takes a pause sign as well as a *G.P.* indication:



or



7

Tuplets

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Definition

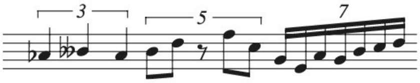
A tuplet is rhythmic division that does not divide into standard groups of two or three. Such groups are considered to be ‘irregular’ to the regular two (♩ beat, etc.) or three (♩. beat, etc.) division. Their notation relies on adding numerals to show their different division. The difference is conceived as a distortion of the standard values. (Henry Cowell, in his *New Musical Resources*, created an imaginative alternative notation by using different-shaped noteheads for each division of the beat, although he did not apply his theory within many of his works.)

The tuplet numeral

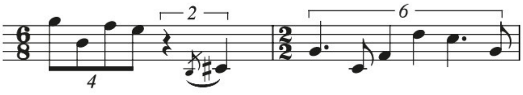
Design and placing

The tuplet numeral is printed in italic to differentiate it from numbers referring to fingering (see p. 308) or players (see example under *Placing player numerals*, p. 528), both of which are given in roman type. The height of the numeral is 1½ stave-spaces.

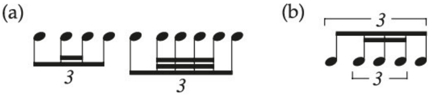
Place the numeral at the visual centre of the group. Thus, where the tuplet is evenly spaced, an odd-numbered numeral centres on the middle duration:



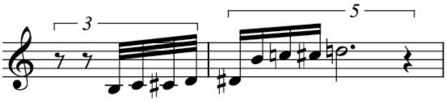
An even-numbered numeral centres between the two middle durations:



When the middle note of a tuplet subdivides, the numeral centres between an even number of subdivisions (a) and on the middle duration of an odd number of subdivisions (b):

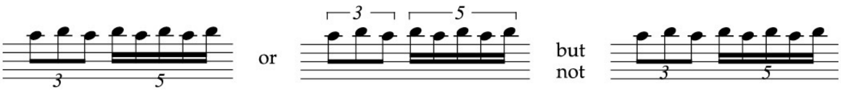


When one part of a beat is disproportionately long visually, traditionally the numeral remains at the visual centre of the group. However, where there are complex groups of tuplets, it is more helpful if the numeral moves to the rhythmic centre of the group, even if this is visually off-centre:



(See also *Tuplets ending with the longest duration*, p. 195.)

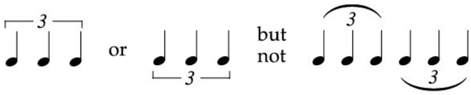
For legibility, place numerals wholly or partially outside the stave. Those placed completely within the stave are difficult to read against the stave-lines:



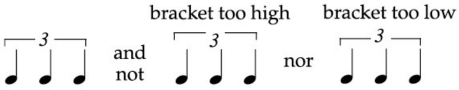
The tuplet bracket

Design

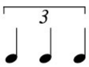
The numeral should be encompassed by a square bracket, and not the curved arc of older editions, as this looks like a slur:



The bracket is broken for the numeral on which it centres vertically:



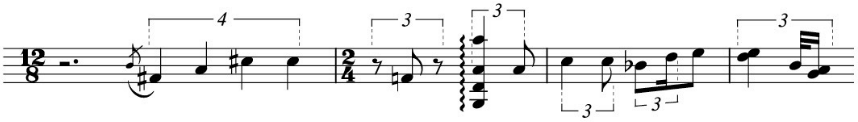
An unbroken bracket may be used and the numeral placed inside the bracket, but this arrangement takes up more vertical space than necessary:



(See also Cowell extract, p. 326.)

Length of brackets

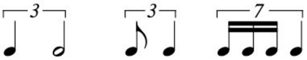
A bracket should extend from the left-hand edge of the first notehead or rest, to the right-hand edge of the final notehead or rest. It does not encompass accidentals, grace notes or an arpeggio line that precede the first note. When a final note is up-stemmed and has a tail (end of bar 2), the bracket still finishes with the stem (i.e. the right-hand edge of the note), not with the tail:



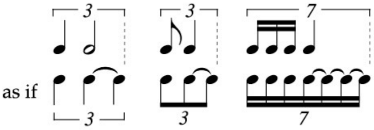
In some editions brackets finish just after the tail: this saves vertical space, as the end notch can be lowered after the stem.

TUPLETS ENDING WITH THE LONGEST DURATION

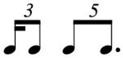
Traditionally, the bracket extends only as far as the last written duration:



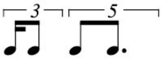
Thus a numeral centred in a bracket occurs before the central duration, making the rhythm unnecessarily difficult to read. It is now usual to extend the bracket to the position of the hypothetical final division of the tuplet, so that the numeral occurs at the rhythmic centre of the group. This makes complex rhythms quicker to read:



When the whole tuplet is beamed, either place the numeral in the middle of the beam:



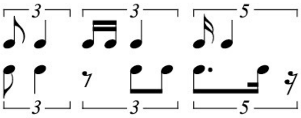
or enclose the tuplet in a bracket that extends as far as the final (invisible) tuplet division. This allows the numeral to be at the rhythmic centre of the group:



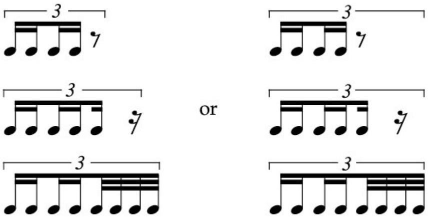
However, such groups often occupy so small a place that there is, in practice, no room to extend a bracket.

Aligning brackets between parts

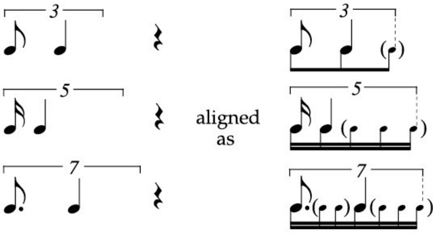
Bracket ends should align between tuplets of the same division:



When the final division of a tuplet is subdivided in some parts but not in others, the bracket ends need to extend only as far as the last duration in each group. This means that brackets may finish at different points. If preferred, all brackets may be extended to the position of the longest bracket. There is a visual logic to this, especially as uniform bracket length will allow the centred tuplet numerals to align vertically:



When dissimilar tuplets are present, the bracket lengths will also vary:

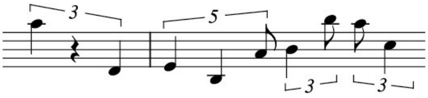


(For tuplet alignment, see Table 1, p. 201.)

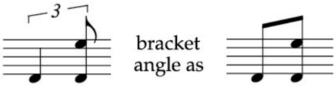
Angle of brackets

GROUPS WITHOUT BEAMS

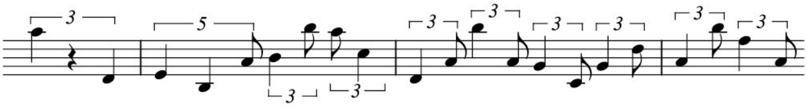
Brackets may slant in the direction of the tuplet's outer pitches:



The angle of the slant should not be too acute; match an equivalent beam slant:

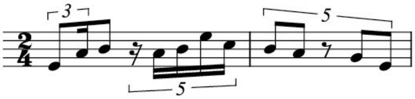


Alternatively, brackets may remain horizontal. For a line of undulating groups this avoids the visual distraction of many sloping brackets:

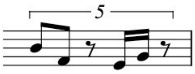


BEAMED GROUPS

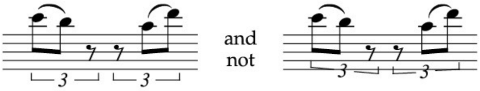
When a bracket encloses beamed notes, it should be parallel to the beams:



When the beams within a tuplet are in different directions, the bracket should remain horizontal:



The bracket should also remain horizontal where it would otherwise slope into the stave, causing a collision of lines that would obscure it:

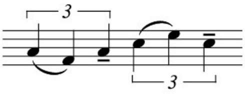


(To place tuplet indications for groups across two staves in keyboard writing, see *Placing tuplet indications*, p. 319.)

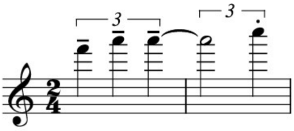
Placing tuplet indications

ABOVE OR BELOW THE STAVE

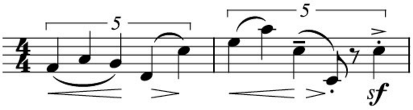
A tuplet indication normally goes to the stem side of the notes, since this is where one would expect to read the rhythm. This keeps the space on the notehead side clear for articulation and slurs:



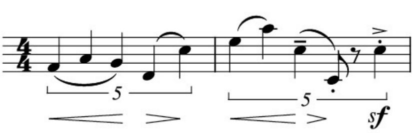
However, in performance material with a passage requiring many ledger lines, tuplet indication may be best placed on the notehead side, as the distance between the notehead and the end of the stem is so great:



For groups with mixed stem direction, the indication can go on either side of the note. It is often best placed above the stave, as the most important consideration is that it is clear of slurs, articulation and hairpins:

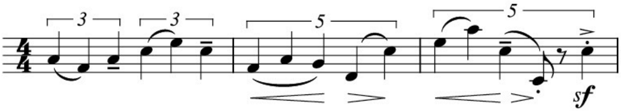


rather than



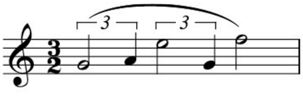
In a different context, however, indications may be best placed with the majority of stems.

If it is distracting that brackets continually alternate above and below the stave, place all brackets above the stave. The reader then becomes accustomed to seeing tuplets in one place, which helps fast reading:

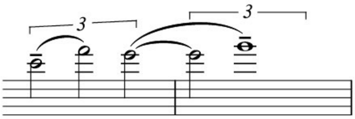


BRACKETS AND SLURS

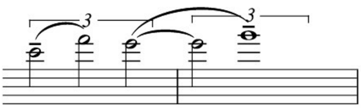
When a bracket is longer than a slur, it goes outside the slur (as in the example above). When a bracket is shorter than a slur, it goes inside it:



Place the bracket outside a slur if the two would otherwise intersect:

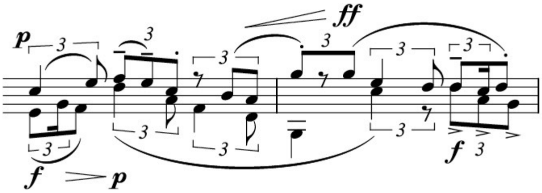


and not



DOUBLE-STEMMED WRITING

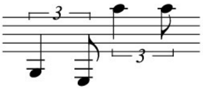
Place brackets and numerals at the stem end of both parts. They should be further from the stave than articulation marks and also from slurs that are shorter than the brackets:



PROXIMITY TO THE STAVE

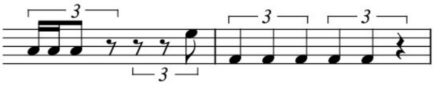
Always place the bracket outside the stave. The bracket ends and the edge of a numeral may intersect a stave-line:

closest position of brackets to the stave

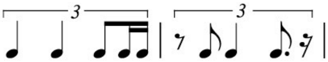


When to use brackets

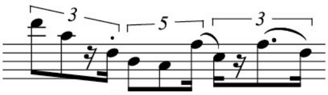
Use brackets to enclose partially beamed groups and groups without beams:



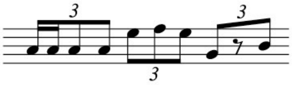
The bracket must enclose all the values of the tuplet, including rests:



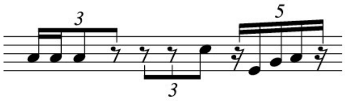
A tuplet numeral placed on the notehead side of a group should be enclosed in a bracket to make it conspicuous:



When the whole tuplet is beamed, it is not necessary to have a bracket, provided the numeral is next to the beam:

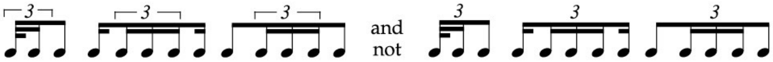


The same is true when beams extend to enclose complete beats that include rests at either or both ends:

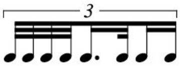


(See also *Extending beams to cover whole beats*, p. 165.)

A bracket must be used where a tuplet is only part of a complete beam, since the numeral might otherwise appear to apply to the entire beam:

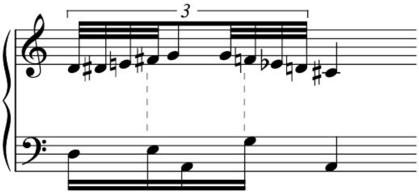


Conversely, if there is likely to be ambiguity, a bracket should clarify that all the durations joined by a beam are part of the tuplet:



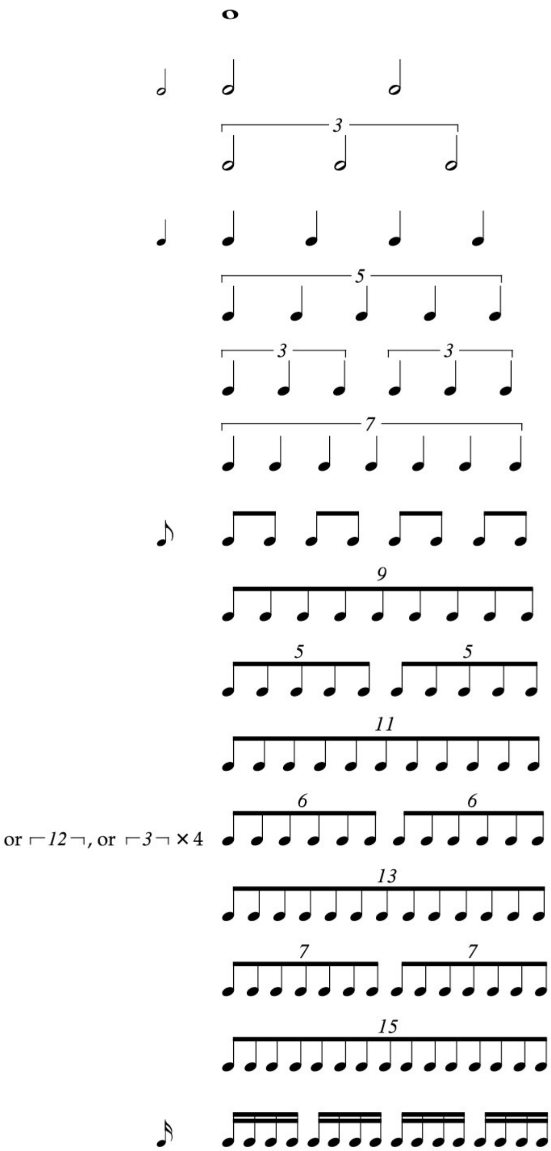
Rhythmic alignment

Tuplets must align rhythmically with all other parts (see Table 1, opposite). As with alignment in a score containing a variety of subdivided beats, this may well disrupt even spacing in another part. In the example below, the upper stave's rhythm is evenly spaced at the expense of the lower stave's rhythm. This helps reading the more complex part:



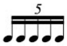
(See also *Vertical alignment*, p. 490.)

TABLE 1: Alignment between ratios


3
5
3
3
7
9
5
5
11
6
6
or ⌐12¬, or ⌐3¬ × 4
13
7
7
15

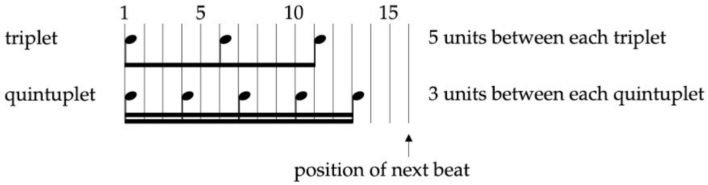
How to calculate alignment

Either multiply the two ratio figures, or use the lowest common multiple. The resulting figure is the number of units to plot on a horizontal axis. Calculate the spacing of the tuplet by dividing the number of units by the tuplet:

To align against  the unit is 3 × 5 = 15.

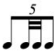
The number of units (15) ÷ the quintuplet = 3.

Place each quintuplet every three units.


1
5
10
15
triplet
quintuplet
5 units between each triplet
3 units between each quintuplet
position of next beat

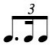
GROUPS OF MIXED NOTE-VALUES

Identify the shortest duration of the first tuplet (x):

 smallest value = , and the number of small values in the unit = 10.

(If one of the groups is not a tuplet, identify the shortest duration of the beat.)

Identify the shortest duration of the second tuplet (y):

 smallest value = , and the number of small values in the unit = 6.

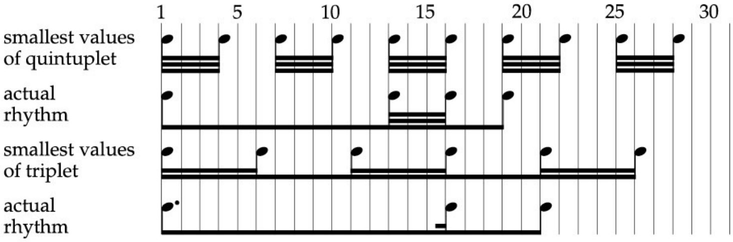
Find the lowest common multiple (LCM) of (x) and (y):

LCM (10,6) = 30

Use this number of units to plot the ratio:

30 ÷ 10 = 3 ∴ (of quintuplet) = every 3 units

30 ÷ 6 = 5 ∴ (of triplet) = every 5 units


1
5
10
15
20
25
30
smallest values of quintuplet
actual rhythm
smallest values of triplet
actual rhythm

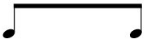
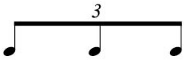
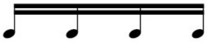
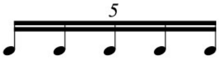
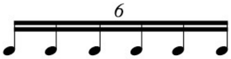
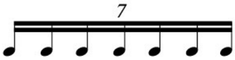
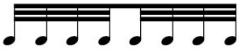
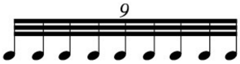
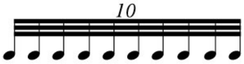
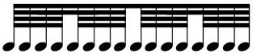
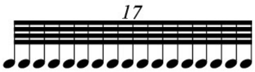
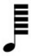
Note-value of the tuplet

Principles

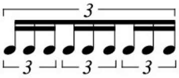
There are two ways to notate note-values that do not divide according to standard beat division.

Option 1 is to add extra notes to the beat until the next standard division. This can be expressed as a contracting ratio: keep the number on the left side of the ratio larger than the number on the right (see 'tuplet ratio' column). Where the left-hand number doubles the right-hand number, add another beam instead:

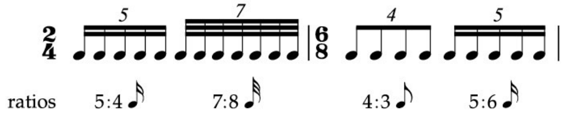
TABLE 2: Standard tuplet division for a crotchet

crotchet division		tuplet ratio
2		
3		3:2 𝅘𝅥𝅮
4		
5		5:4 𝅘𝅥𝅯
6		6:4 𝅘𝅥𝅯
7		7:4 𝅘𝅥𝅯
8		
9		* 9:8 𝅘𝅥𝅰
10		10:8 𝅘𝅥𝅰 up to 15:8 𝅘𝅥𝅰
16		
17		17:16 𝅘𝅥𝅱 up to 31:16 𝅘𝅥𝅱
32		

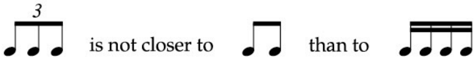
* NB: 9:8 is usually three groups of triplets:



In Option 2, the note-values take the nearest arithmetical unit, so that sevens are regarded as closer to eights than to fours. This produces a series of ratios that both contract and expand:



Option 2 makes it hard to calculate at a glance whether, for example, thirteen is closer to eight or to sixteen. In addition, triplet divisions are closer neither to the greater nor to the lesser binary values:



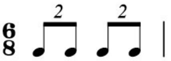
Option 1 – to maintain a convention where all the ratios go the same way – is recommended as the clearest notation. This avoids the contradiction of both expanding and contracting ratios.

Should tuplets be notated using expanding ratios, indicate ratios in full to avoid any confusion (see *Stating the tuplet ratio in full*, p. 207).

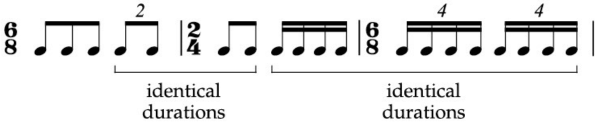
Compound-time duplet divisions

TRADITIONAL NOTATION

Traditional practice gives duplets and quadruplets their shorter equivalent durations even though this contradicts the contracting ratio method outlined above. 2:3 is the expanding ratio. The logic for this practice is, firstly, that the numeral acts as a substitute for a duration dot:

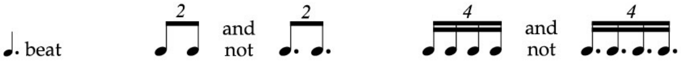


Secondly, when the beat remains the same, equivalent durations have identical notation in both simple- and compound-time metres. For example, where the metric equation is $\frac{2}{4}$ ♩ = $\frac{6}{8}$ ♩. the result is:



It is quite acceptable to use this traditional notation in a context where there are no tuplets more complicated than duplets or quadruplets. Where other ratios are required as well, use the contemporary notation for all ratios as described opposite.

Another convention sometimes used is to add duration dots to duplets and quadruplets while retaining the numerals. This is incorrect – the numerals are self-sufficient:

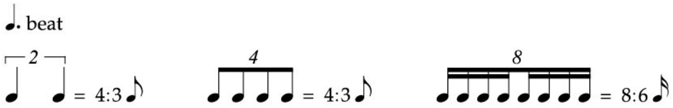


(See also *Dotted values*, below.)

CONTEMPORARY NOTATION

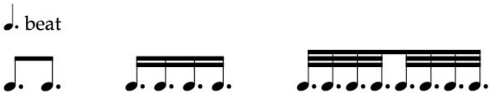
There are two equally valid ways of notating duplet division.

Contracting ratio: notes can be added to the beat until the next standard subdivision is reached. 4:3♪ is the contracting ratio:

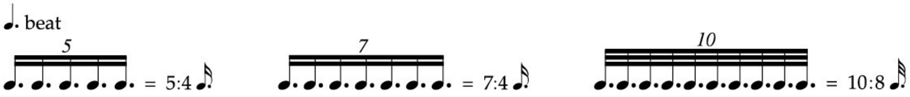


(If this method is used, all other tuplet durations should also take a contracting ratio: 5:3, 7:6 etc. – see Table 3, first column, p. 206.)

Dotted values: duplet-beat divisions can take equivalent durations as dotted notes (or rests) and do not need to be written as tuplets:



Other tuplets may also relate to the dotted-note division:



When using this notation, indicate the tuplet ratio and its dotted note-value at first appearance, e.g. ⌐5:4𝅘𝅥𝅯.¬ , since the sum of the ratio note-values 4 × 𝅘𝅥𝅯. = ♩., 8 × 𝅘𝅥𝅰. = ♩. etc. is not an obvious division of a compound beat (see also Table 3, 'alternative notation' column, p. 206).

If these dotted divisions are used, all tuplets should consistently take this notation, since otherwise shorter note-values (the quintuplets below) look slower than longer values (see last example):

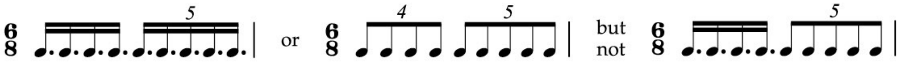
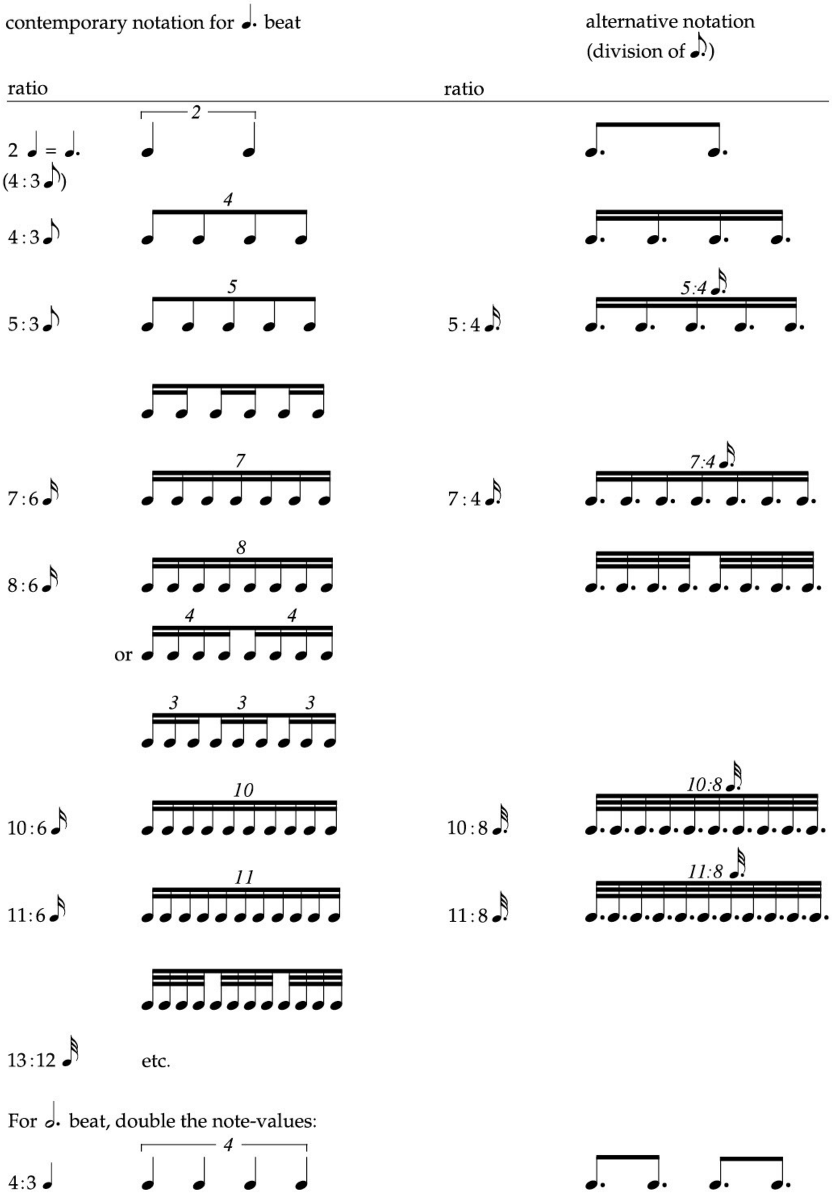
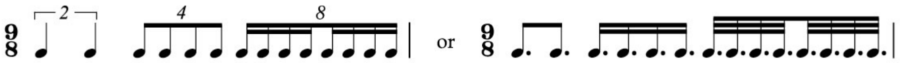


TABLE 3: Tuplet note-values in compound time


contemporary notation for ♩. beat
alternative notation
(division of ♪.)
ratio
ratio
2 ♩ = ♩.
(4:3 ♪)
2
4:3 ♪
4
5:3 ♪
5
5:4 𝅘𝅥𝅯.
5:4 𝅘𝅥𝅯.
7:6 𝅘𝅥𝅯
7
7:4 𝅘𝅥𝅯.
7:4 𝅘𝅥𝅯.
8:6 𝅘𝅥𝅯
8
or
4
4
3
3
3
10:6 𝅘𝅥𝅯
10
10:8 𝅘𝅥𝅰.
10:8 𝅘𝅥𝅰.
11:6 𝅘𝅥𝅯
11
11:8 𝅘𝅥𝅰.
11:8 𝅘𝅥𝅰.
13:12 𝅘𝅥𝅰
etc.
For 𝅗𝅥. beat, double the note-values:
4:3 ♩
4

(For use of the alternative notation above, see Carter extract, p. 517.)

Context: it is quite acceptable to use either contracting ratios or dotted notes according to whichever is most appropriate to the context:

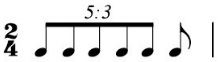


Numerals are easier to read than dotted notes except for the occasional group. The dotted divisions produce a more complicated visual image, and the reader is likely to stumble at the sudden arrival of lots of dots.

When there are extensive passages of duplets, it may be simpler to change time signature to reflect the different beat divisions (see *Interchanging simple- and compound-time metres*, p. 172).

Stating the tuplet ratio in full

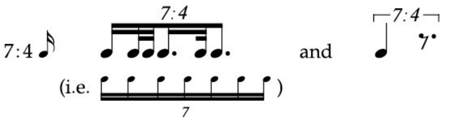
State the full ratio where the tuplet is a non-standard length:



(The figure '5' alone would normally be 5:4 in a crotchet beat.)

In compound time, this also avoids ambiguity: for example, as to whether ⌐5¬ = 5:3 or 5:6.

The ratio should also be stated when the tuplet rhythm contains mixed note-values, and the note-value of the division is not immediately obvious:

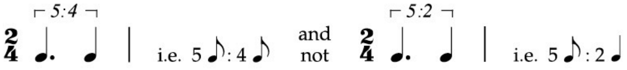


When a whole bar is divided into equal tuplet values it is usually unnecessary to use a full ratio (see Table 4, p. 209).

(See also *Labelling a tuplet of mixed note-values*, p. 213.)

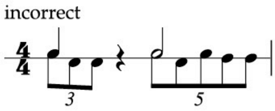
How to notate the ratio

Notate the ratio using a colon for 'in the time of'. Where possible, express both sides of the ratio in terms of the same note-value:



Where the ratio cannot be expressed with the same note-value, substitute written note-values for the duration of the tuplet (see *Groups with no literal ratio equivalents*, below).

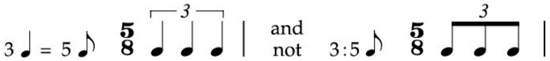
Do not notate the duration of a tuplet as an initial extra note-value, as this looks like another musical part:



Groups with no literal ratio equivalents

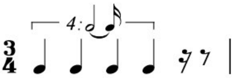
Where the duration of the tuplet is itself irregular – e.g. 𝅗𝅥‿♪ or a whole bar of, say, $\frac{5}{8}$ or $\frac{7}{8}$ – there is no straightforward unit of division against which to measure the irregularity. Notate the tuplet so as to convey an impression of equal division within the allotted duration, even though it has no literal ratio equivalent.

For division within durations of five and seven beats, select the note-value for the tuplet according to the contracting-ratio principle:



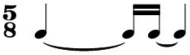
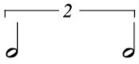
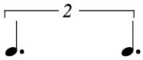
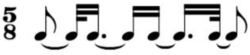
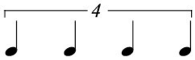
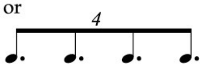
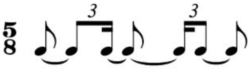
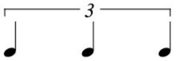
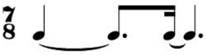
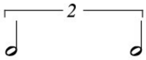
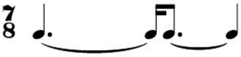
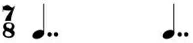
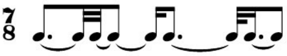
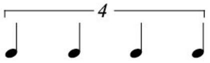
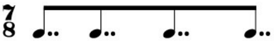
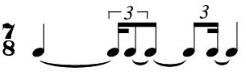
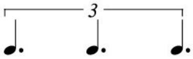
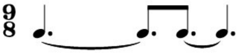
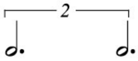
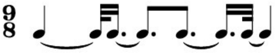
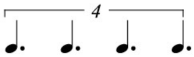
(See Table 4, opposite.)

For equal division of more unusual durations, indicate note-values on the right-hand side of the ratio to define the tuplet duration:



For rhythms indicated in Table 4, when a tempo is very slow or ensemble is critical, it may be more helpful to subdivide the bar so as to expose its beats (see 'actual rhythm' column) rather than to use contracting ratios (see *Degree of note division within tuplets*, p. 210):

TABLE 4: Groups with no literal ratio equivalents

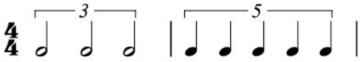
	actual rhythm	written as	contracting ratios	ratio
duplet				8:5 ♪
			or 	6:5 ♪
quadruplet				8:5 ♪
			or 	6:5 ♪
triplet				6:5 ♪
duplet				8:7 ♪
	or 			
	or* 			
quadruplet				8:7 ♪
	or* 			
triplet				9:7 ♪
duplet				4:3 ♩.
quadruplet				4:3 ♩.

* These undivided single durations are difficult
to count in a slow tempo and are better divided up.

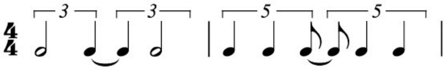
Degree of note division within tuplets

Tuplets may be subdivided to expose the beats of a bar when this would be helpful for ensemble purposes. The degree of note division depends on two things: the tempo, and how critical it is that the performer accurately places each note against a beat.

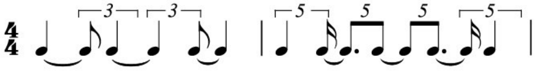
Undivided tuplets disregard the stresses of the written metre, in order to emphasize a fluent musical line:



Tuplets that expose the middle beat help the placing of rhythms against the middle of the bar:



When the performer needs to count each beat, expose each beat. Since performers will mark in the position of the beats that they need to 'think', it is helpful if the notation provides this:

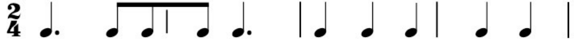


The composer's perceived disadvantage of this notation is that it may encourage slight jerkiness or unwitting accentuation as the performer places each rhythm against the beat. To counteract this tendency, add a term such as *legato* and *scorrevole* ('flowing').

ACROSS A BARLINE

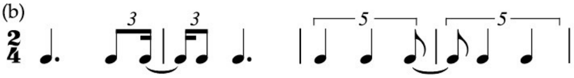
An unbroken tuplet bracket or beam may be extended between two bars. The first note-value in the second bar comes after the beginning of the bar, aligned as if the tuplet were subdivided across the barline:

(a)



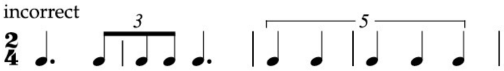
aligned as

(b)



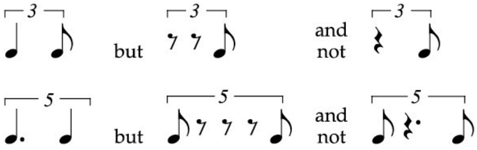
When it is more helpful to do so, subdivide tuplets to expose the beginning of each bar, as in (b) above.

When the tuplet is undivided across the barline, the number of notes on each side must be correct, as in previous example (a).

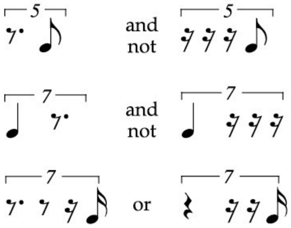

incorrect
3
5

Rests within a tuplet

Keep separate rests for each division of a tuplet where this clarifies division. It can be clearer not to present rests in their most abbreviated durations:


3
but
3
and not
3
5
but
5
and not
5

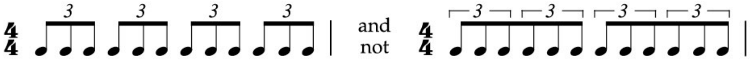
However, it is best to amalgamate rests within groups of short durations, so that the groups can be read more quickly:


5
and not
5
7
and not
7
7
or
7

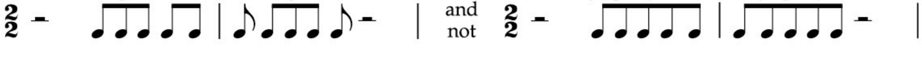
Tuplet beaming

Groups with single beams

Beam each tuplet separately to give the rhythmic groupings maximum clarity:


3
3
3
3
and not
3
3
3
3

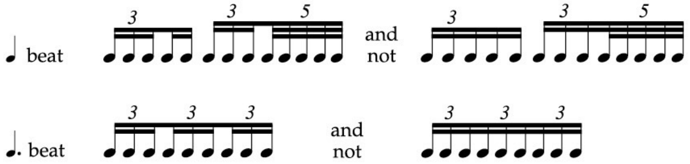
It is usually best to separate tuplets from other beamed notes, as the rhythms are then much clearer to read:


3
3
and not
3
3

(To show how a bracket can clarify the extent of a tuplet, see *When to use brackets*, p. 199.)

Groups with inner beams

The outer beam can join together subdivided units as long as the inner beam is divided for each tuplet. Undivided inner beams obscure the rhythm:


beat
3
3
5
and
not
3
3
5
beat
3
3
3
and
not
3
3
3

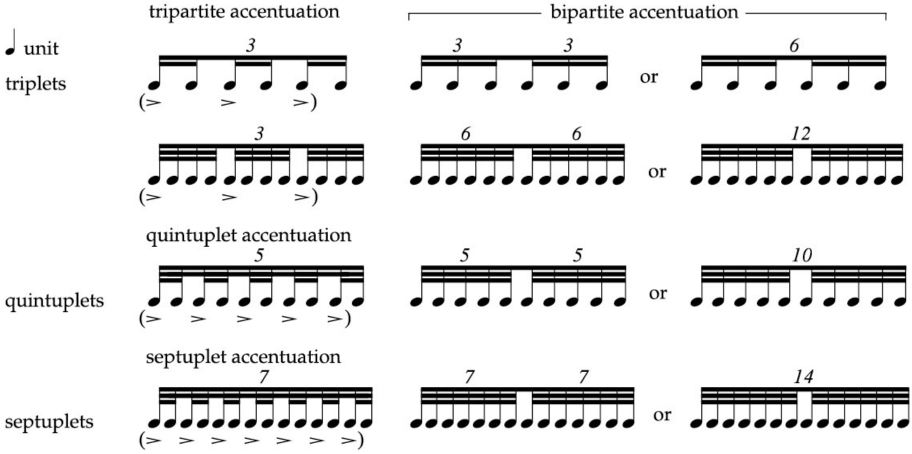
Beaming and labelling subdivided tuplets according to accentuation

It is important to separate the innermost beams to reflect the correct subdivision of a tuplet.

When it is the tuplet itself that subdivides, the numeral indicates the division of the whole group (and not the subdivisions). This is how the rhythm is stressed (see bracketed accents), and the beaming should reflect this accentuation (Table 5, first column).

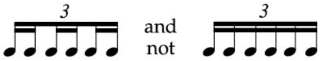
When two groups of tuplets are joined by one beam, either each group takes a separate tuplet numeral (see second column), or the sum of the numerals appears as one centred numeral (third column):

TABLE 5: Beaming and labelling subdivided tuplets according to accentuation

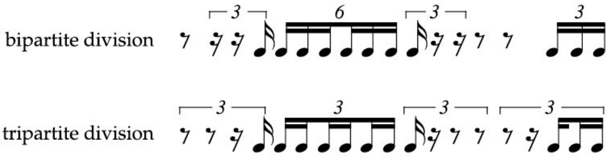

tripartite accentuation
bipartite accentuation
unit
triplets
3
3
3
or
6
(> > >)
3
6
6
or
12
(> > >)
quintuplet accentuation
5
5
5
or
10
quintuplets
(> > > > > >)
septuplet accentuation
7
7
7
or
14
septuplets
(> > > > > > >)

DIFFERENTIATING TRIPLETS FROM SEXTUPLETS

A triplet is always a tripartite division, whereas a sextuplet is two groups each of three notes, a bipartite division (see Table 5, opposite). It is incorrect to beam a triplet without subdividing the beams, as the division would then be unclear:

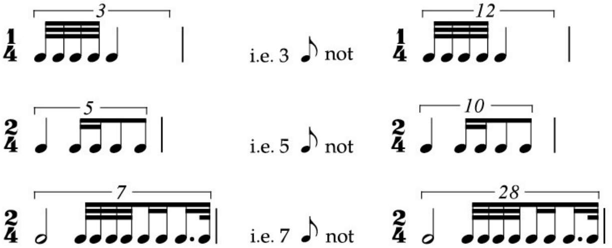


Group rests according to the correct rhythmic division:


bipartite division
3
6
3
3
tripartite division
3
3
3
3

LABELLING A TUPLET OF MIXED NOTE-VALUES

Such subdivided tuplets should use the numeral with the smallest multiple, i.e. the numeral for the division of the whole group, and not the smallest note-value:


3
1/4
i.e. 3 ♪ not
12
1/4
5
2/4
i.e. 5 ♪ not
10
2/4
7
2/4
i.e. 7 ♪ not
28
2/4

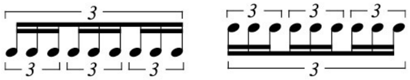
(See also *Stating the tuplet ratio in full*, p. 207.)

Tuplets within tuplets

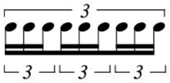
Placing numerals and brackets

Enclose the tuplet numeral for the entire division in a bracket so that it is clear it applies to the whole group. A numeral for a subdivided group requires a bracket only when the numeral is on the notehead side of the group (see *When to use brackets*, p. 199).

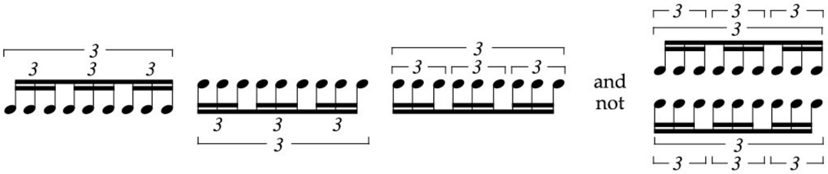
Where there is room, place one tuplet indication on either side of the group. The indication for the whole group should go on the stem side:



When all other tuplet indications in a passage are above the stave, place the indication for the whole group above the stave:

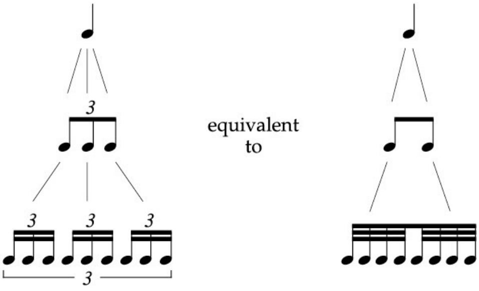


When both tuplet indications need to be on the same side of the group, place the indication for the whole tuplet furthest from the group:

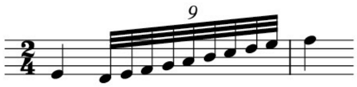


Note-values of triplets

When a triplet subdivides into further triplets, the note-values look slower than their longer standard-division equivalents:

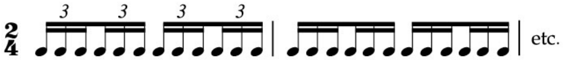


However, when nine notes are in the time of a crotchet, and the tuplet group is to be without internal accentuation, this can be written as follows:



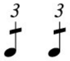
Tuplet repetition

Groups of identical rhythmic patterns may drop the numeral after a bar or two, provided that the rhythmic grouping remains clear:



However, when there is complex rhythmic alignment in a full score, numerals are best included throughout so that the conductor can see the alignment at a glance.

Tuplets of repeated single notes or chords may be abbreviated:



In both cases, *sim.* may be added for clarity once the numeral is omitted.

(See *Tuplet division (triplets, quintuplets, etc.)*, p. 219.)

8

Repeat Signs

TREMOLOS 219

Principles of repeated-note abbreviation 219

Tremolo definition 220

Single-note tremolos 221

Two-note tremolos 225

REPEAT-BEAT AND REPEAT-BAR ABBREVIATION 230

REPEATED SECTIONS 233

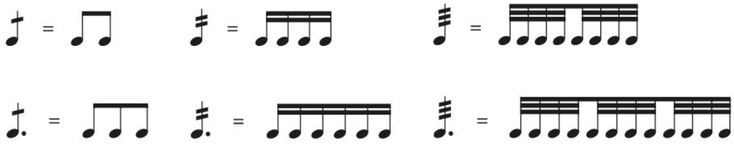
Da Capo and Dal Segno layouts 238

TREMOLOS

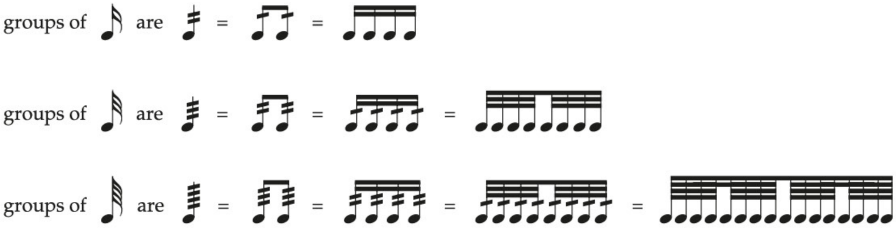
Principles of repeated-note abbreviation

A repeated number of notes can be abbreviated provided that the repeated note-value is a quaver or shorter. The repeated notes are usually a tremolo except for quavers or semiquavers in a slow tempo.

Diagonal lines through a stem indicate the note-value of the repetition. These are the tremolo strokes. Each stroke added to the stem doubles the number of repetitions:

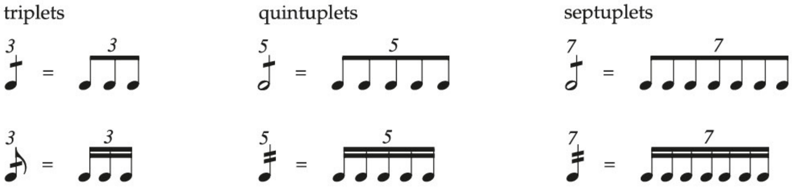


Each stroke is, in effect, a shorthand beam. Deduct one stroke for every beam or tail that is added to the stem:

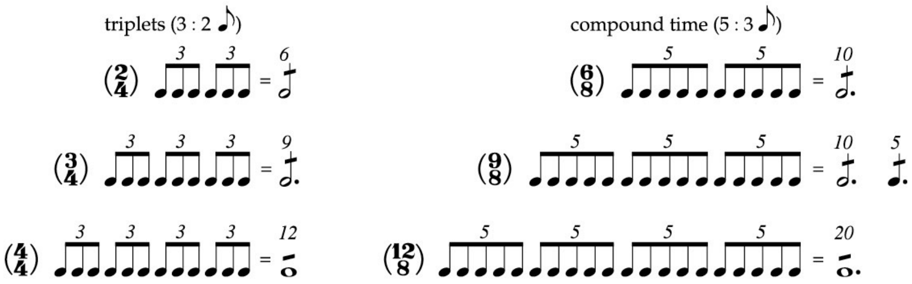

groups of
are
=
=
groups of
are
=
=
=
groups of
are
=
=
=
=

Tuplet division (triplets, quintuplets, etc.)

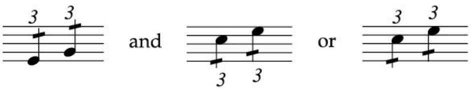
Repeated-note abbreviation may indicate repeated tuplets. A numeral represents the divisions of the initial note-value:


triplets
3
3
=
3
3
=
quintuplets
5
5
=
5
5
=
septuplets
7
7
=
7
7
=

The numeral multiplies according to the number of tuplets contained within the note-value:


triplets (3 : 2 ♪)
compound time (5 : 3 ♪)
3 3 6
3 3 3 9
3 3 3 3 12
5 5 10
5 5 5 10 5
5 5 5 5 20

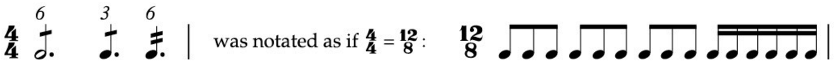
Allocate the appropriate tuplet numeral to each stem, or place it above the stave (if this is where surrounding numerals are positioned):



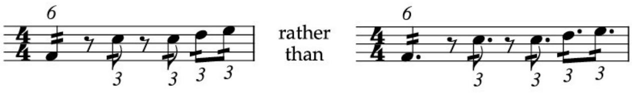
A tuplet is clearest unabbreviated at its first appearance (see *When to use abbreviation*, p. 223).

TRIPLETS (AND THEIR MULTIPLES) IN SIMPLE TIME

Traditionally, note-values were converted into compound time by adding durations dots:


6 3 6
was notated as if 4/4 = 12/8 :

It is now standard practice to notate the actual value of the initial note, to avoid confusion over duration:


rather than

Tremolo definition

Measured tremolo: this is the fast repetition of notes measured exactly in a given tempo. The effect is to create audible rhythmic subdivisions of the written beats (see *Measured tremolos*, p. 224).

Unmeasured tremolo: this is repetition played as fast as possible, without perceptibly defined rhythm (see *Unmeasured tremolos*, p. 224).

The single-note tremolo: this is the rapid re-articulation of a single note or chord, which may be either measured or unmeasured.

The two-note tremolo: this is the rapid alternation (either measured or unmeasured) of two different pitches or chords (see *Two-note tremolos*, p. 225).

Tremolo strokes are used in woodwind and brass writing to indicate flutter-tonguing (see *Flutter-tonguing*, p. 247).

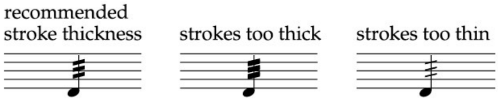
Single-note tremolos

Design of the tremolo stroke

Each stroke is a little thinner than a beam (see *Beams: Design*, p. 17). This is so that the spaces between the strokes are slightly wider than between beams (the spacing of strokes for both is the same). Thus the strokes are less likely to fill in and obscure a rhythm when placed against stave-lines.

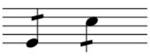
The stroke is the width of a notehead, and is centred on the stem.

Strokes should not be too thin or they will be inconspicuous on the stave:

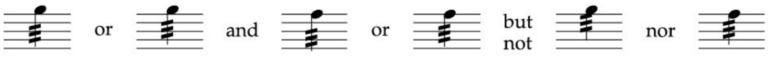


POSITION ON THE STAVE

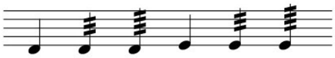
A tremolo of only one stroke intersects a stave-line:



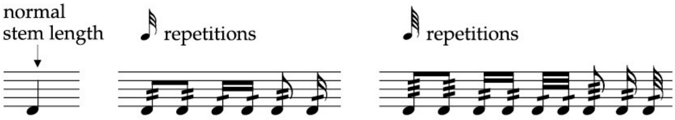
Two or more strokes must be at least one stave-space clear of a notehead, so as not to obscure it:



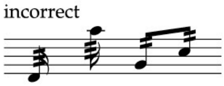
A stem should extend beyond the outermost stroke. It will need to be longer than normal to accommodate three (or more) strokes:



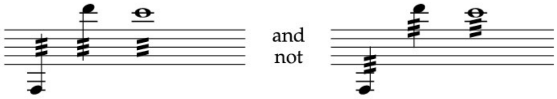
When a tremolo note has a tail or beam, extend a stem if necessary, so that the tremolo strokes are clear of tails and beams. Where there are one or two strokes, it is clearest if they centre on stave-lines:



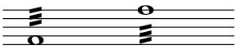
If tremolo strokes intersect a tail or beam, they will obscure the duration:



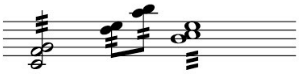
Tremolo strokes must stay within the stave so as not to be confused with, nor collide with, a ledger line:



The semibreve has the same width of tremolo stroke as other note-values, which means the strokes are slightly shorter than the width of the notehead. Centre the semibreve strokes on the notehead, and place them above or below it according to the notional position of a stem:

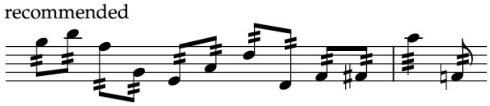


On adjacent-note chords, the strokes remain the same width as for single-note repetitions. For semibreves, the tremolo strokes centre on the note that is notionally on the 'correct' side of the stem:

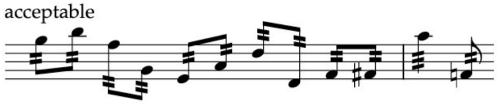


ANGLE OF STROKES

Tremolo strokes slant diagonally from bottom left to top right, regardless of stem direction or beam angle:

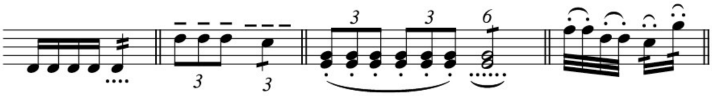


In some editions, the slant is slightly steeper than the steepest beam angle. In other editions, beamed groups take strokes of beam thickness (i.e. thicker than the diagonal tremolo strokes), which are placed parallel to the beam; notes without beams have the thinner diagonal strokes (as in bar 2):

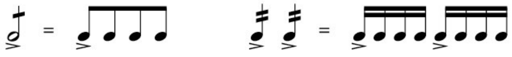


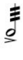
Repeated articulation

Articulation may be added for repeated-note abbreviation and measured tremolo notes. Centre on the notehead the number of articulation marks appropriate for the number of repetitions:



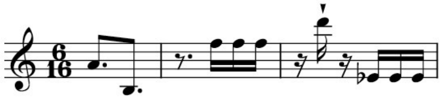
A single accent may be used if it applies to the first note only:



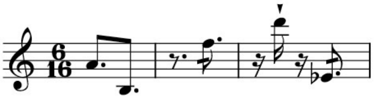
An accent may also be used to indicate the accented first note of an unmeasured tremolo: 

When to use abbreviation

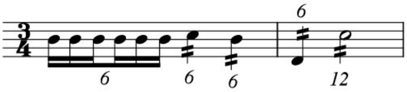
With measured tremolo, reserve abbreviation for extended repetition. Isolated figures should be written out in full, as they are much easier to read unabbreviated:



and
not



Notate tuplet abbreviations in full at their first appearance, before abbreviating them:



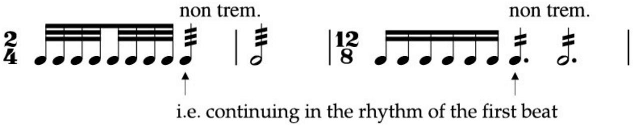
Notate fast, measured repetition in full initially, so that it is not misinterpreted as unmeasured tremolo (see below).

Unmeasured tremolo repetition is always abbreviated.

Measured tremolos

It is sometimes unclear whether a tremolo should be measured or unmeasured because of inadequate specification. The abbreviation defines the unmeasured tremolo so frequently that this notation will be read as unmeasured unless otherwise indicated.

It is therefore advisable to notate the first beat or bar of a measured tremolo in full. (It is then assumed that this same rhythm will apply to subsequent note abbreviations.) For absolute clarity, add the label *non trem.* to the first note-value of abbreviation:

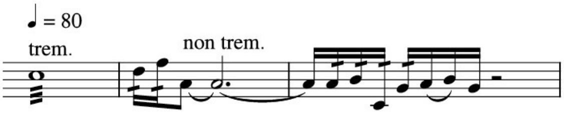


Unmeasured tremolos

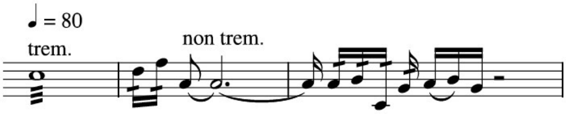
The standard indication is three tremolo strokes. The notation implies that the repetition is too fast to measure in the given tempo, and therefore must be unmeasured. Should it be possible to measure the repeated notes in the given tempo, add a further tremolo stroke to each note.

Since percussionists are able to play very fast tremolos measured where even may be ambiguous, indicate *trem.* over the first note of an unmeasured tremolo passage in a moderate or slow tempo (as in the example below).

After a tremolo passage it is useful to alert the reader to the first non-tremolo note with a *non trem.* indication:



As long as it does not make the rhythm difficult to read, the changes of technique are best clarified with separate beaming:

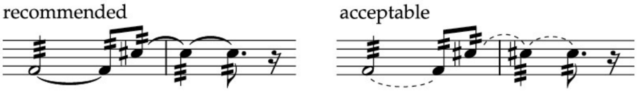


(For percussion, see *Single-note rolls*, p. 293.)

TIES

Ties may join consecutive unmeasured tremolo notes of the same pitch to discourage any slight accent on a subsequent beat. Dotted ties are sometimes used, since the tie is not literal, but solid ties are visually less complicated to read.

Repeat an accidental over a barline should a dotted tie be used (this is unnecessary with a solid tie):



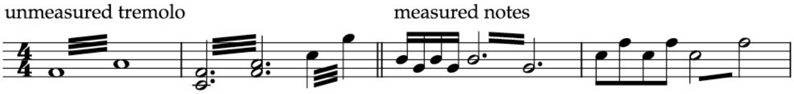
Two-note tremolos

The two-note tremolo is the alternation of two different pitches or chords: it is rapid alternation in an unmeasured tremolo (see *Unmeasured tremolos*, p. 224), and rhythmically precise alternation in a measured tremolo (see *Measured tremolos*, p. 224).

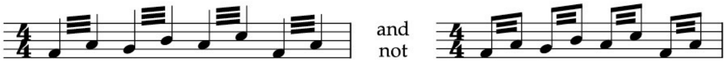
The two-note tremolo is notated with beams of ordinary beam thickness and centred between the stems (or notional stems) of the relevant pitches.

Written note-values

The two-note tremolo is a notational anomaly in that both note-values take the full duration of the tremolo:

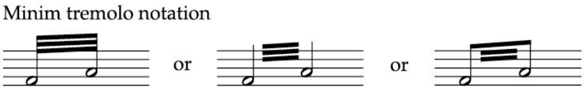


Sometimes, in older scores, crotchet tremolos are joined by a quaver beam, but this is incorrect:



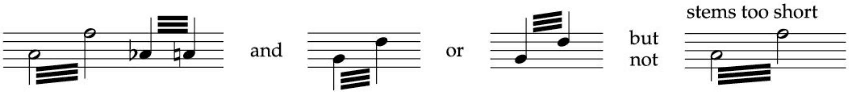
Positioning tremolo beams

Except for minim tremolos, tremolo beams are not attached to stems. Minim tremolos can be beamed in one of three ways:

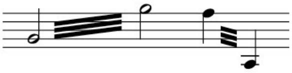


When beams and stems are separate, position the beams between the stems of the two pitches as if they were joined to the stems. However, the detached beams may move slightly closer to the noteheads than attached ones, so that stems are not forced to be greatly extended (compare the beam positions in the example above).

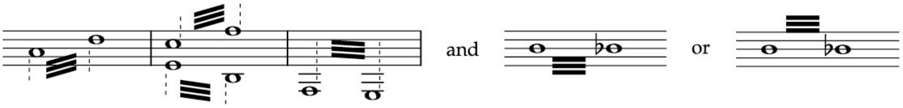
Both stems must point in the same direction and enclose all the beams. Stems for notes equidistant from the middle stave-line may go in either direction:



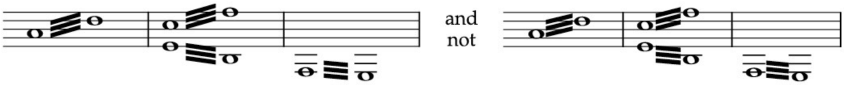
If the interval between the two pitches is an octave or more, it is acceptable to place the beams between the notes (both of which take conventional stem direction). This saves space outside the stave. The beams slant in the direction of the interval:



For semibreves, position the tremolo beams as if the semibreves were stemmed (notional stems are here represented by dotted lines):

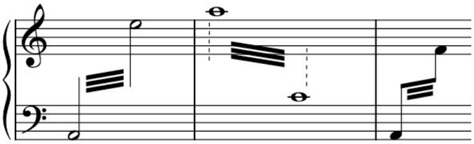


It is acceptable to move semibreve beams close to noteheads, to save space outside the stave. This should be avoided if the close proximity of beams and notes or ledger lines is visually confusing:



BETWEEN TWO STAVES

For a braced part on two staves, place tremolo beams for semibreves as if the notes were beamed mid-system (notional stems are represented by dotted lines in the following example). When only one of the beams is attached to both stems (as in bar 3), the tremolo beams go below:

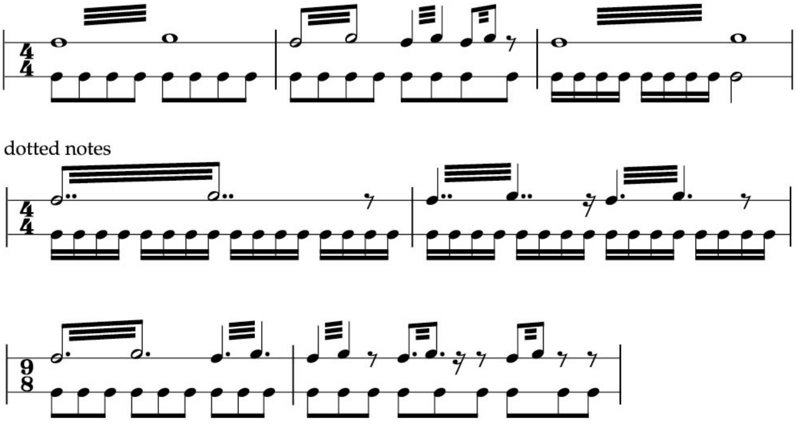


(For notation of *Double-stemmed beams*, see p. 315.)

Second-note alignment

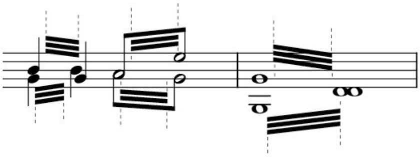
Place the second note rhythmically (not visually) exactly halfway through the duration of the tremolo.

The following examples shows vertical alignment with another part in score format:

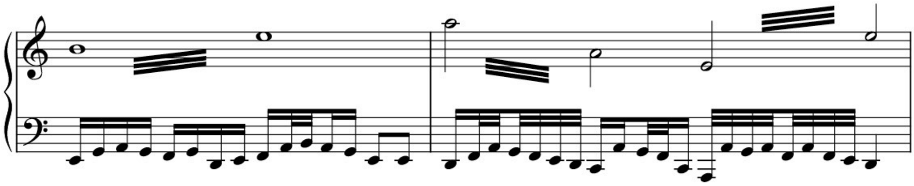


Length of tremolo beams

Beams stop just short of each stem (or the notional position of the stem on stemless notes). The distance from each stem should be the same. Thus the tremolo beams for two parts on one stave will not align precisely (this is illustrated below by dotted lines):

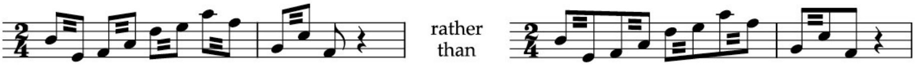


Beams for widely spaced tremolo notes may be uniformly shortened so as not to look ungainly:



Separating each two-note tremolo

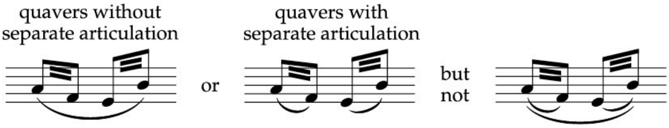
It is usually helpful visually to beam individual two-note tremolos separately. Divide tremolos from each other and from non-tremolo notes:



Slurs

Attach a slur to a two-note tremolo only when this is the required articulation. A slur is essential when the second note has no separate articulation.

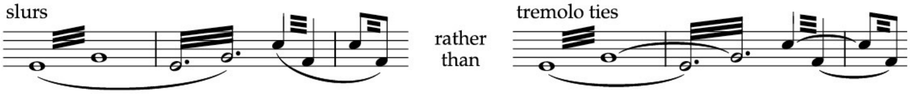
In wind and string notation, when the tremolo is part of a phrase with no separate articulation, do not add slurs for tremolos as well, as this causes confusion as to whether each tremolo is separately articulated (i.e. tongued or bowed) or not:


quavers without separate articulation
or
quavers with separate articulation
but not

(See *Slurs within slurs*, p. 113; for wind instruments, see *Articulation*, p. 245; for strings, see *Two-note tremolos*, p. 404.)

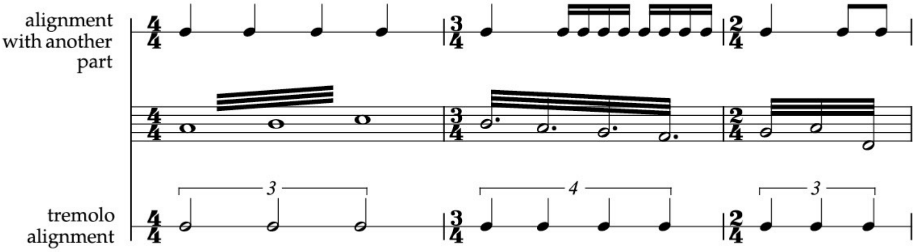
Tremolos lasting more than single note-values

To tie two-note tremolos (with a solid or dotted tie) is not at all practical. The resulting visual complexity outweighs any apparent clarification of articulation. A slur for the whole figure is recommended to replace the function of the tie, i.e. to prevent rearticulation or accentuation at the beginning of subsequent notes:



Tremolos between three or more pitches

These are played by repeating the three or more pitches in sequence. All notes take the full value of the tremolo duration. When the tremolo is between three pitches, place each note one third of the way through the tremolo duration, for four notes a quarter of the way through, and so on. Centre the tremolo beams across the middle values. All the notes of a minim tremolo may be beamed together:



Britten adopted this clear and efficient notation in his late works (see, for example, *Death in Venice*).

Harp tremolos have their own notation and so do not need to be written in this way (see *Tremolos and bisbigliando*, p. 360).

(To notate variation in tremolo speed, see *Beamed groups indicating variation in speed*, p. 158; see also *Variation in trill speed*, p. 139.)

Repeat-beat and Repeat-bar Abbreviation

Using abbreviation

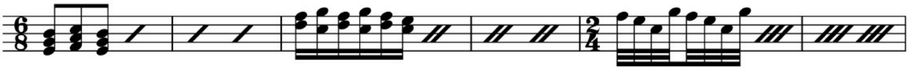
In full scores: abbreviation is ideally suited to the repetition of simple material where score-reading will not be unduly hampered by the abbreviation signs. For this reason, these abbreviations are appropriate in entertainment and theatre music. Abbreviation is inappropriate for complex textures, since the abbreviation signs obscure simultaneous events. Therefore, in general, this type of abbreviation is not suited to concert-music scores.

In instrumental parts: except where there is a shortage of space, it is best to fully notate repeated material, so that performers can follow by eye what they are playing. The abbreviation signs given below may, however, be used, especially for extended repetition. Avoid a one-off repeat abbreviation, unless space is very limited, as this interrupts the visual progress of the music on the page. Easily memorable material is the most suitable for abbreviation, since the reader can look onwards with the repeated bars, rather than needing to refer back to the first statement of the material and risking losing the place.

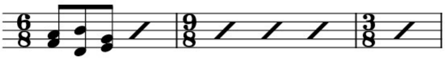
Repeated beats

This notation is appropriate only in instrumental parts of entertainment and theatre music.

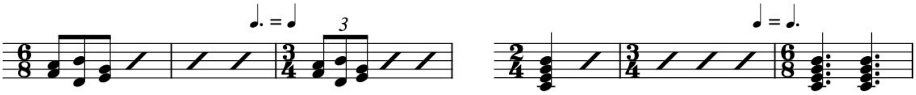
A diagonal line of beam thickness, centred in the middle two stave-spaces, indicates repetition of the preceding beamed group. A single diagonal line represents quaver groups, two lines represent semiquaver groups, and three lines represent demisemiquaver groups:



Beat repetition may continue over a change of metre, provided that the written duration of the beat is unchanged:



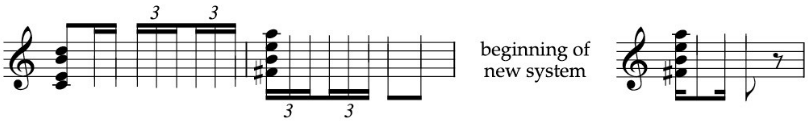
If the written duration of the beat changes, the repeat should be written out with the new note-values:



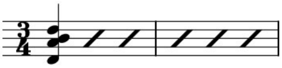
Repeated chords

This notation is appropriate for indicating repeated chords with a variety of rhythms (regular, repeated rhythms should use repeated-note abbreviation: see *Principles of repeated-note abbreviation*, p. 219).

For note-values of less than a crotchet, stems alone may indicate repeated chords. The stems should be of identical length to the initial chord. Restate repeated pitches at the start of a new system. In an instrumental part in a fast tempo, this notation may be more helpful than the full notation of every chord, since it is immediately clear where a chord changes. It can also be space-saving:



Repeated crotchets: a diagonal line through the middle two stave-spaces may be used in entertainment and theatre music:



Minims are not abbreviated.

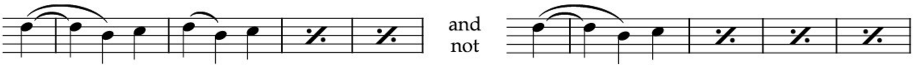
Repeated bars

These repeat signs are suitable for use in instrumental parts in all musical genres.

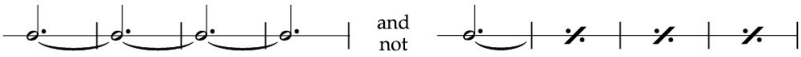
SINGLE-BAR REPEATS

The abbreviation for a repeated bar is a diagonal line of beam thickness, placed in the middle two stave-spaces with a bold dot on either side.

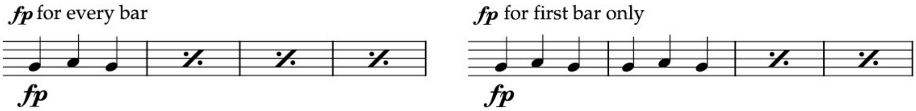
In order to use this abbreviation sign, the content of a bar must be an identical repetition of the previous bar; otherwise, the bar should be notated in full. A bar beginning with a tie or a slur cannot use the single-bar repeat sign:



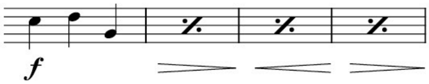
Bars of tied notes alone should be written out in full:



A dynamic indication given in the bar to be repeated will apply to every repeated bar, unless cancelled:



Changes of dynamic during bars of the abbreviation sign are acceptable:



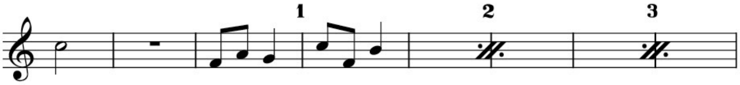
An abbreviation sign cannot be used after a change of metre, nor should it be placed after bars of rests. Notate the music of the repeated bar at the beginning of each system so that it is not necessary to look back to a previous system.

In instrumental parts, bars of repeat signs should be numbered. The first statement of the material (and not the first repeat) is ‘1’ (see following example; see also *Repeated bars*, p. 578).

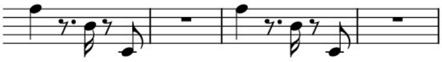
TWO-BAR REPEATS

For the two-bar abbreviation, parallel diagonal lines bisect the barline. The sign is used in the same way as the single-bar repeat. In an instrumental part, number each pair of bars, the first statement being ‘1’.

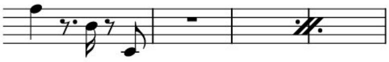
Use the two-bar repeat sign very sparingly, ideally only for a self-contained, two-bar figure. Good layout is essential so that the eye skips back to the correct place. Unless preceded by a rest, place the two-bar material at the beginning of a system; thus it will be separated visually from the music that is before it. The initial two bars should never be divided over a system break:



A two-bar repeat should not include whole-bar rests:

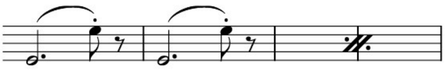


and
not

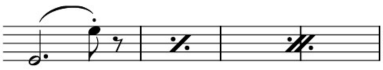


It should not repeat two identical single-bar repeats, nor be combined with single-bar repeat signs:

avoid



and

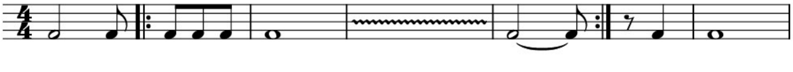


REPEATED SECTIONS

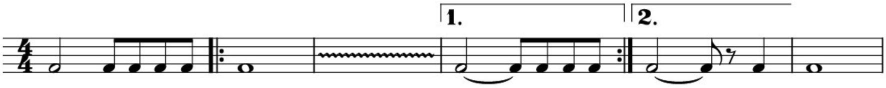
Placing repeat barlines

Repeat barlines frame a section to be repeated, except where the repeat is from the beginning of a piece, in which case no initial repeat barline is needed.

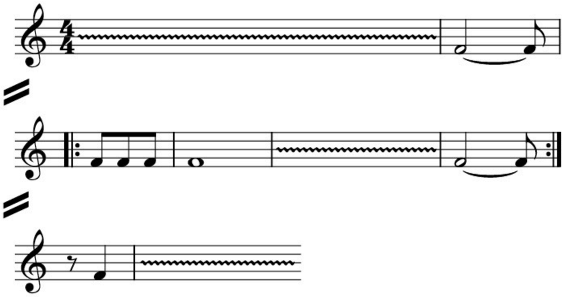
Repeat barlines may be placed at any point in the bar. At a conventional barline, they replace it. When the repeat barlines do not coincide with the metrical barline, the value of the beats at each end of the repeat must add up to a whole bar:



A repeated section that does not coincide with barlines (as above) may instead use first- and second-time endings, to allow repeats to coincide with (and replace) ordinary barlines. The incomplete bar is taken into a first-time bar (see *First- and second-time endings*, p. 236).

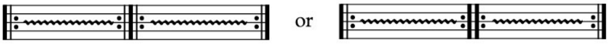


Where possible, the beginning of a repeat should coincide with a new system. This makes the section easiest to locate. When a repeated section does not coincide with the barline, incomplete bars may be placed on consecutive systems:



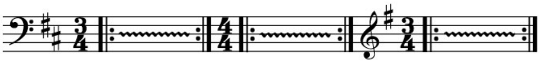
Some editions place a thin double barline at the end of a previous system where a repeat barline starts the next system.

To repeat adjacent sections, use repeat barlines back to back. Either of the following designs may be used:



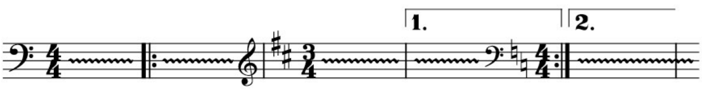
Placing changes of clef, key signature and time signature

When there is a new clef, key signature or time signature at the beginning of a repeated section, place the repeat marks afterwards:

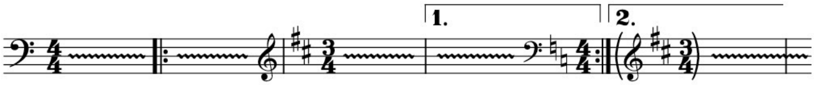


(If the example above were the opening of a piece, the initial repeat barline would be unnecessary.)

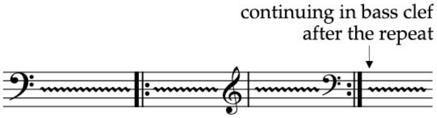
When a clef, key signature or time signature changes during a repeated passage, it must be reinstated for the repeat. Create a first-time bar for this information:



After a change in the first-time bar, a reminder in brackets of a continuing clef, key signature or time signature is helpful at the beginning of the second-time bar:

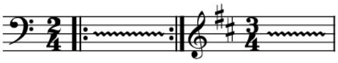


When the change applies to a passage that follows the repeat as well, place the warning clef, key signature or time signature at the end of the repeated section:

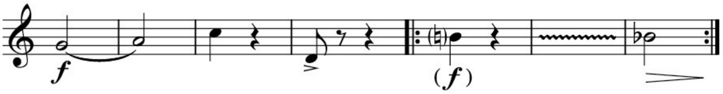


CHANGES AFTER A REPEAT

A change that affects the music only after a repeat goes after the repeat barline:



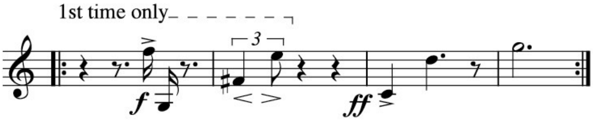
It is useful to add reminder accidentals and dynamics in brackets for the performer returning to the beginning of a repeat:



Variation in repeat sections

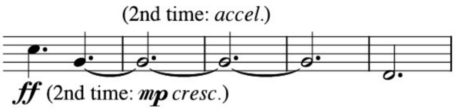
When there is any variation between repeats, a repeated section should be written out in full, with the exception of the following.

When a player is silent for some of the bars within one repeat, or for a whole repeat, state this verbally over the stave, e.g. *play 1st/2nd time only* or *1st/2nd time tacet*:



Alternatively, when there is a very small difference, such as a single note to be played once only, this may be written as a cue note with a whole-bar rest above or beneath (see *Cue notation*, p. 569). Add a verbal instruction such as *1st/2nd time only*.

Dynamics or tempo changes that differ for a repeat are placed in brackets after first-time indications:



When instructions become complicated, a repeated passage is clearest written out in full.

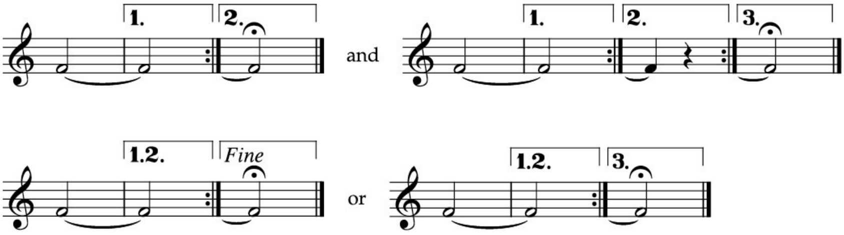
(For verse repeats in vocal music, see *Alternative text underlay*, p. 449; for unsynchronized repetition, see *Independent repetition*, p. 621.)

First- and second-time endings

These may be indicated in English or Italian: *first time* or *prima volta*; *second time* or *seconda volta*; and *final time* or *ultima volta*.

Any variation at all between repeat endings, however small (e.g. a pause on the final ending), requires separate endings in the form of first- and second-time bars.

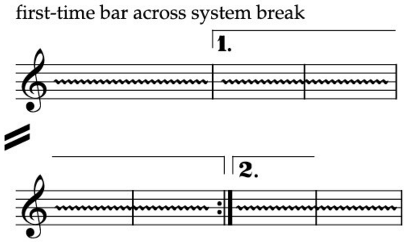
Brackets above the system enclose the relevant bars for each repeat. The number of repeats is given within each bracket (use numerals the size and appearance of time-signatures):



Place brackets in the same position as tempi: in an orchestral score, this is above the top stave and also above the strings. Tempo indications or rehearsal marks that coincide with first- and second-time bars may be placed above or within the bracket, according to available space.

SEPARATE ENDING SECTIONS OF MORE THAN A BAR'S LENGTH

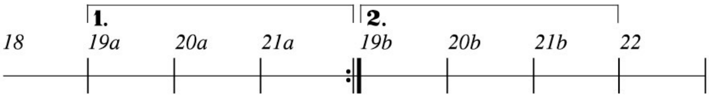
Enclose the first-time bars (and any further repeated sections before the final-time repeat) in a bracket. Across a system break the first-time bracket is open-ended. The final section bracket extends for usually one bar only (or two short bars) and remains open-ended:



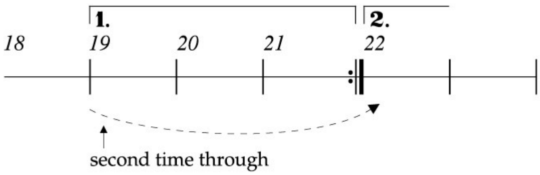
At the end of a piece, to look more final, run a second-time bar to the end (provided it is shorter than a whole system) and close it parallel to the final double barline.

BAR NUMBERS

Some editions duplicate first- and second-time bar numbers as shown below. If this is the case, the second-time bracket must enclose the bars that have the duplicate numbers (this will be equal to the number of first-time bars). It is also useful to number each bar, for clarity:



In ensemble music, it is best to number consecutively through separate endings, to avoid confusion when counting bars during rehearsal. For clarity, indicate the numbers of the first-time bars and the first second-time bar:



(See also *Bar numbers*, p. 484.)

Da Capo and Dal Segno layouts

Section repetition using an accepted familiar layout, such as verse form in vocal music, and the minuet (or scherzo) and trio in instrumental music, requires the clear demarcation only of sections (or verses) that are to be repeated.

Where a piece involves anything other than straight repetition, the following Italian terms signpost the reader through repeated sections, replacing repeat signs:

Da Capo (abbrev. *D.C.*) means '[repeat] from the beginning'.

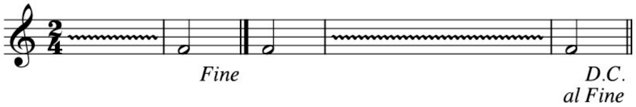
Dal Segno (abbrev. *D.S.*) means '[repeat] from the sign (marked 𝄋)'.

(In the examples below, the word *Segno* may be replaced or followed by 𝄋.)

Add the phrase *al Fine* ('to the end') to the above terms when the end of the piece (indicated *Fine*) is not at the written end of the music.

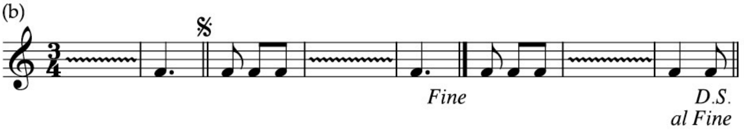
Da Capo al Fine (also marked only as *Da Capo*) means 'from the beginning to the end' (i.e. as far as the bar marked *Fine*):

(a)



Dal Segno al Fine (often marked only as *Dal Segno*) means 'from the sign to the end' (i.e. to *Fine*):

(b)



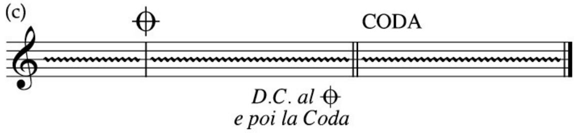
LAYOUT WITH A CODA

The traditional coda sign is 𝄌. When skipping to a final section or coda after a repeated section (as described above), the point of departure for the final section is marked 𝄌.

Layout is set out as follows.

D.C. al 𝄌 *e poi la Coda* (also abbreviated to *D.C. al Coda* or *D.C. al* 𝄌) means 'from the beginning to the sign and then skip to the coda':

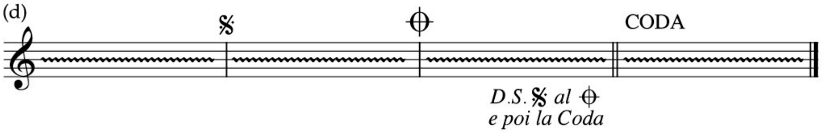
(c)



For visual clarity, the coda sign may be placed both at the point of departure for the coda and at its start (see last example, below).

Dal Segno 𝄋 *al Segno* 𝄌 *e poi la Coda* (also abbreviated to *D.S. al Coda* or *D.S. al* 𝄌) means 'repeat from the sign 𝄋 to the sign 𝄌 and then skip to the coda'. It is important to include both signs in the instruction, to clarify which is which:

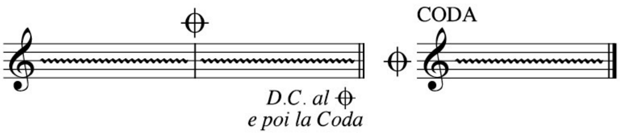
(d)



Be aware that the layout in the example above may be difficult to negotiate without getting lost, especially if it involves page-turns between the different sections. Rehearsal time may be used up rehearsing the geography of the piece rather than the music. In such cases, notate all or some of the repeated sections in full, so as not to risk jeopardizing a secure performance.

When the reader must skip a section to a coda, make its location conspicuous:

- Mark it with a thin double barline, the label *Coda* or 𝄌, or even use all three for added clarity (see following example)
- When the coda begins on a new system, indent the system. Place the coda label or sign above the system or, if convenient, in the indented margin of an instrumental part
- When the coda begins mid-system, where there is room, blank out a preceding section of stave and place the coda label or sign there (in a single-stave part) or above the stave (in a score or braced part):



Note that clef and key signature must be reinstated after the stave break. In a score, restate margin brackets as well; in a braced part, restate the curly brace.

POSITIONING THE SIGNS

The sign 𝄋 should always signal a point from which to repeat. The coda sign 𝄌 indicates a point from which to skip ahead.

The signs 𝄋 and 𝄌 go above the stave (or top stave of a system), centred over the barline.

Da Capo, *Dal Segno* and *Fine* instructions are written in a conspicuous font, to differentiate them from surrounding text: in a vocal score or orchestral part this might be italic, otherwise bold. Place them above the top stave of a vocal score; below the stave of a single-line part; below the bottom stave of a score or braced part.

DOUBLE BARLINES

No repeat barlines (𝄆 𝄇) are used unless there are internal repeats within sections.

A thin double barline, rather than a final double barline, marks the written end of the music when this is not the end of the piece (see examples (a) and (b), p. 238).

Only the *Fine* bar, the actual end of the piece, takes a final double barline. This is regardless of whether the *Fine* is a whole or an incomplete bar. A thin double barline is used for repetition and departure points mid-bar (see (b), p. 238). Otherwise, thin double barlines are not used at repetition and departure points that occur on barlines (see examples (c) and (d), p. 239), unless these coincide with a new music section.

POSITIONING REPEAT SECTIONS

It is helpful if sections to be returned to or skipped to can begin on a new system. This visually demarcates them.

Ideally, a *Fine* bar in the written middle of the piece should be placed at the end of a system.

BAR NUMBERS

Numbering should run consecutively through all written sections. Thus a repeated section will not have independent numbering. A section involving skipping a passage (e.g. to a coda) will have a corresponding skip in bar numbers.

II

IDIOMATIC NOTATION

9

Woodwind and Brass

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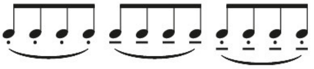
GENERAL TOPICS

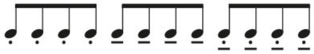
When writing for woodwind and brass instruments, it is best to be precise in musical intent but not too technically prescriptive, since instrument design is constantly being modified. The player will always find a way to produce the prescribed sound. Unconventional techniques can be described with conventional notation and verbal explanation: this chapter includes the most commonly used techniques.

Articulation

A wind player separately articulates each note unless it is marked with a slur. A slur indicates a complete legato from note to note. When notes within the slur have articulation marks, each has a separate attack, although the slur modifies the degree of separation:

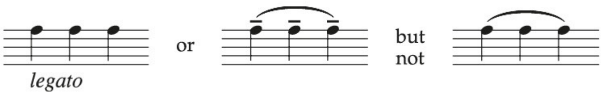


Articulation is more pronounced when there are no slurs:

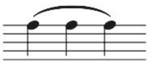


(See also *Articulation marks*, p. 114.)

In woodwind music, it is ungrammatical to write a slur over a reiterated pitch without additional articulation marks. Since each note must be tongued, tenuto lines or even staccato dots should be added under the slur to indicate this rearticulation. Alternatively, use a written instruction to indicate legato playing:



In brass music, a slur over repeated notes indicates legato tonguing:



(For placing slurs with two-note tremolos, see *Slurs*, p. 228.)

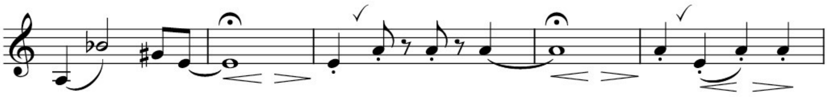
Phrasing

Phrasing indications are best omitted from wind music: reserve the slur to show legato articulation. Additional indication of phrase structure independently of legato slurs is more confusing than helpful: when there are two sets of slurs it is difficult to tell which is which, or to judge if the role of the slur is inconsistent, and players will therefore have to decide for themselves how to interpret the markings. Furthermore, the player may question whether or not a phrase mark modifies the articulation within it.

A dotted slur may be used if it is essential to show phrase structure. However, this is not recommended as the dotted slur is visually more complicated and the performer will always question its meaning.

BREATH MARKS

✓ indicates a breathing point. This sign should be used only specifically to indicate a break in the sound. Otherwise breathing should be left to the player.



A phrase mark should not be used to indicate that a phrase is to be played in one breath: the player may have to breathe elsewhere for technical reasons. Rests are often used as part of a musical phrase, and are not necessarily indicative of a breath.

The time taken for the breath is subtracted from the previous note. Reserve the comma (’) for a short pause or lift during a phrase (see *Pauses: Break in sound*, p. 187).

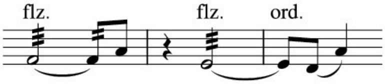
Tonguing

It is not necessary to specify how the player should articulate: he or she chooses whether to single-, double- or triple-tongue according to context. Double- or triple-tonguing may be requested as a written instruction, although it is a technical matter and does not materially affect the sound.

The tongue actions that articulate double- and triple-tonguing are usually equated to forming the consonants t–k and t–k–t respectively. It is not necessary to specify these since the player modifies tonguing as a matter of course, according to the notated articulation. Appropriate verbal instructions, if required, are *soft-tongued*, *hard-edged attack*, etc.

FLUTTER-TONGUING

Flutter-tonguing is notated as a tremolo, with an abbreviation above the stave: *flt*. or *frull*. (Italian: *frullato*) or *flz*. (German: *Flatterzunge*). It is important to give the verbal indication, so that the tremolo is not interpreted as very fast, rhythmic tonguing. The instruction needs to be cancelled only when a flutter-tongued tied note changes to an ordinary sustained note. Draw the player's attention to such a change by adding *ord., nat.* or *norm.* to the ordinary note:



Microtones

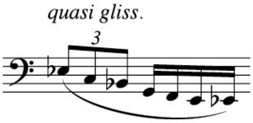
Microtonal pitches can be achieved by inflecting the pitches of the tempered twelve-note scale by means of lip and embouchure adjustment. In addition, woodwind instruments have special fingerings for many microtones. The player will choose the most suitable way of producing the required microtone. Therefore, in general, it is best to spell microtones according to the musical context. If it is the case that the player must bend a pitch up or down to achieve the required microtone, notate the microtone according to how the player will approach it. For example, where a pitch must be flattened, notate the microtone with a downward arrow from the semitonal pitch (see *Microtones*, p. 94).

Glissandos

Conventional glissandos

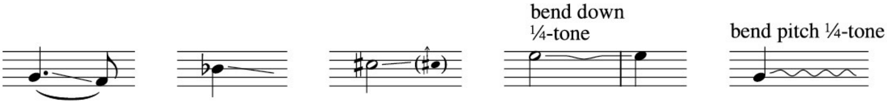
A conventionally notated glissando – a diagonal line between the outer pitches with a *gliss.* indication – is interpreted as an instruction to produce as continuous a slide as possible. This will be played according to the available technical means and musical context. (For notation of glissandos, see p. 140.)

To acknowledge where a completely smooth glissando is not technically possible, chromatic pitches may be written out in full together with a *quasi gliss.* indication:



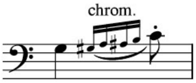
Pitch bend (Lip glissando)

To bend a note is to alter its pitch by embouchure and/or throat adjustment. This may be specified as *lip* or *bend*, to emphasize that the glissando pitches are not to be chromatically fingered. The bend is notated as a line after the notehead, which may be shaped to reflect the contour of the glissando:



Chromatic glissandos

When a glissando is a scale of chromatic semitones, these should be notated in full, either as measured notes or as grace notes. Include the instruction *chromatic* (abbrev. *chrom.*) so that the player does not attempt to slide over intermediary pitches:



(For brass, see also *Glissandos*, p. 265.)

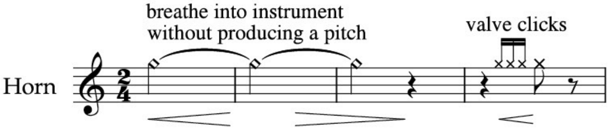
Special techniques

A special technique may use a different-shaped notehead to distinguish it from ordinarily played notes, as long as the notation has verbal qualification (see *Performance instructions*, p. 491).

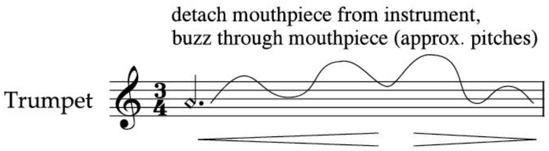
It is extremely important to explain a technique clearly in words. It is not essential to designate a symbol for a special technique, although it is visually helpful to do so.

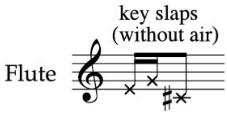
An unconventional notehead should have only one meaning in a piece. When different techniques alternate, it may be helpful to use contrasting different-shaped noteheads.

Non-pitched sounds are clearest placed at the top or bottom of the stave:

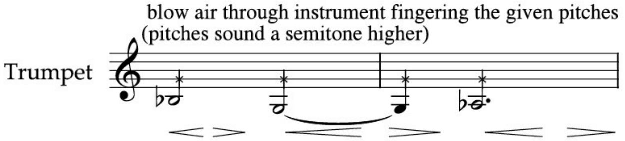


Notate sounds that are to be pitched on the stave:


detach mouthpiece from instrument,
buzz through mouthpiece (approx. pitches)
Trumpet


key slaps
(without air)
Flute

If groups of non-standard noteheads, or those on ledger lines, are difficult to read, use crosses through stems instead:

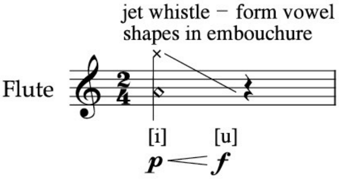

blow air through instrument fingering the given pitches
(pitches sound a semitone higher)
Trumpet

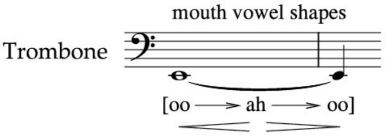
Flutter-tonguing, harmonics, multiphonics and key slaps have specific notation, as described under separate headings in this chapter. Other techniques do not. (See Kurt Stone, *Music Notation in the Twentieth Century* for suggested notation of various very specialized techniques.)

Phonemes to modify timbre

The forming or changing of vowels or phonemes in the embouchure during a blown note results in a change of tone quality. Indicate the vowels or phonemes to be used below the stave in square brackets.

Qualify in a footnote the pronunciation of vowel sounds with reference to a language familiar to the player (e.g. 'i = *ee* as in *seen*, u = *oo* as in *soon*'; see also *Qualifying text sounds*, p. 451). A verbal instruction must make it clear that the sounds are not actually voiced:


jet whistle – form vowel
shapes in embouchure
Flute
[i]
[u]
p
f


mouth vowel shapes
Trombone
[oo → ah → oo]

(In the flute example above, the diamond note represents the fundamental, i.e. the fingered pitch; see *Harmonics*, p. 256.)

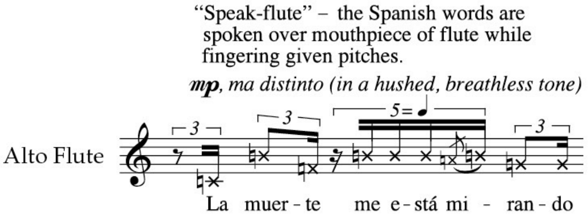
Vocal sounds through an instrument

To whisper, speak, sing, hum or whistle through the instrument modifies or amplifies the sound.

SPEAKING THROUGH AN INSTRUMENT

Use crossed noteheads to indicate speaking through the instrument. (If groups of crossed notes are difficult to read, use a cross through stems instead.) A verbal instruction must make it clear that the player fingers the pitches and speaks through the instrument:

Crumb: *Madrigals* Book IV



"Speak-flute" – the Spanish words are spoken over mouthpiece of flute while fingering given pitches.

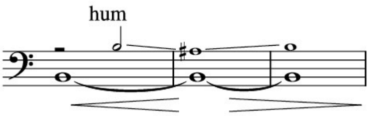
mp, ma distinto (in a hushed, breathless tone)

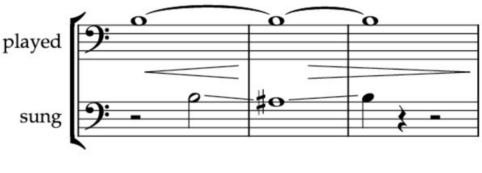
Spoken text that is entirely independent of the instrument also uses crossed noteheads, and should be labelled *spoken* (see also *Vocal sounds from instrumentalists: Spoken part*, p. 461).

VOCALIZING WHILE PLAYING

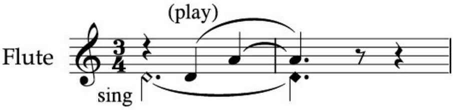
Pitches to be sung or hummed simultaneously with blown notes may require embouchure modification. The composer must consult a player to find out what is possible.

The sung pitches may take ordinary noteheads, as long as each entry is labelled *hum* or *sing*. However, it is often clearest to use cue-sized noteheads to differentiate the sung pitches. If there is room, place both sung and played pitches on the same stave, but with separate stems. Where it would be confusing to have both parts on one stave, place the sung notes on a separate stave below the played notes and use ordinary noteheads for both parts:



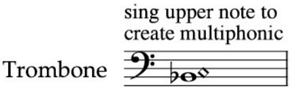


Alternatively, a different-shaped notehead such as a diamond note (Berio uses ⊙ in his *Sequenza V* for trombone) may be used to distinguish visually the occasional voiced pitch:



Sung pitches must be correctly transposed for the relevant instrument. Write them at concert pitch for instruments that transpose at the octave. It is generally assumed that unless the pitches are in a range that can be reached by all voices, the player will transpose them up or down an octave as necessary.

Sung and played pitches to produce multiphonics: One method of producing multiphonics, and the only technique for multiphonic production on brass instruments, is to sing one note while playing another. The different frequencies interact to produce further notes or timbres:



(See also *Multiphonics*, p. 257.)

Transposition

In performance material, woodwind and brass parts must be written at the correct transposition for the instrument (but see also *Trumpet*, p. 260).

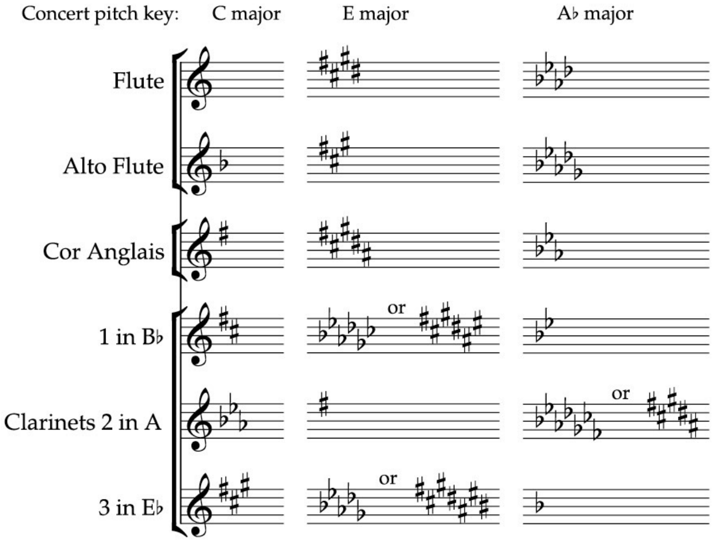
Cues in a player's part must be correctly transposed for the playing instrument (see *Transposition*, p. 574).

In a full score, woodwind and brass may be either transposed or written at sounding pitch (see *Score transposition*, p. 505, and *Labelling transposing instruments*, p. 510; also, *Playing score*, p. 538).

Transposition and key signatures

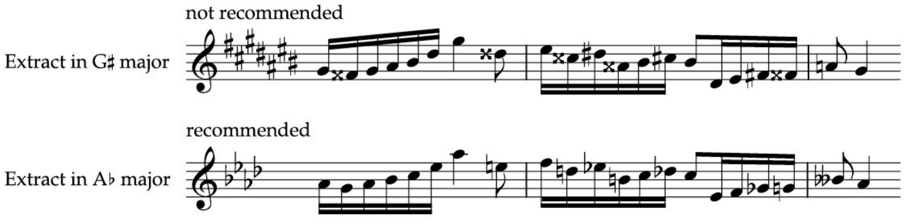
In tonal music, each transposing instrument has its own relevant key signature. In music without a clear tonal centre, a transposed part does not take a key signature unless the concert-pitch version has one. Horns and trumpets do not usually take a key signature at all (see *Key signatures*, p. 263).

TABLE 1: Transposed key signatures in a sample woodwind layout


Concert pitch key:
C major
E major
A♭ major
Flute
Alto Flute
Cor Anglais
1 in B♭
Clarinets 2 in A
3 in E♭
or
or
or

Enharmonic key changes

In keys remote from C major, convert the key signature enharmonically so as to use the key with the least number of sharps or flats. For example, concert pitch F♯ major key for a B♭ major instrument should transpose to A♭ rather than G♯ major. (A literal transposition up a tone would require a leading-note accidental of F𝄪.) The transposition to A♭ reduces the number of accidentals:


not recommended
Extract in G♯ major
recommended
Extract in A♭ major

When the enharmonically equivalent key has an equal number of accidentals (as in F♯/G♭ major), allocate the sharp key signature for instruments in sharp keys (in G, A, etc.), the flat key signature for instruments in flat keys (in F, B♭, etc.)

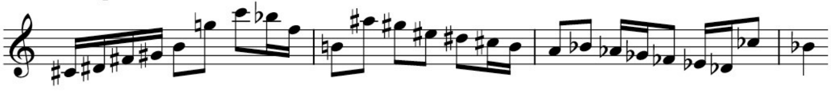
When a transposed part has more accidentals that contradict the key signature than confirm it, consider writing it without a key signature, instead placing accidentals in front of the relevant notes as they occur.

Enharmonic note-spelling

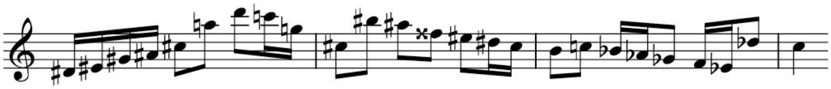
In music without key signatures, the literal transposition of a sharp-key line into a flat-key instrument (see (b) below, bars 1–2), and vice versa, leads to greater numbers of accidentals than in the original, and frequently to double sharps or double flats. To simplify reading, reduce the number of accidentals by judicious use of enharmonic equivalents (see (c) below).

Avoid double sharps and double flats, except in a tonal context that cannot easily be rewritten enharmonically. It is often better not to respell isolated notes enharmonically if this creates diminished and augmented intervals that are awkward to read (d):

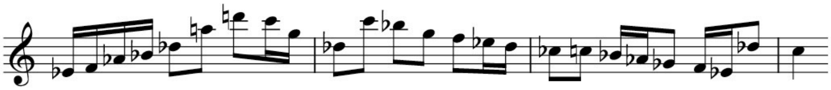
(a) Concert pitch



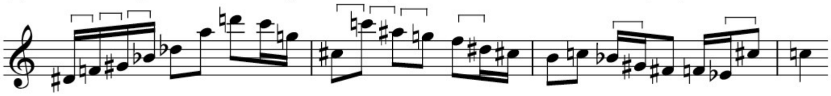
(b) Literal transposition into B♭



(c) Enharmonic transposition



(d) Literal transposition removing some sharps creates awkward intervals (⊓)



Where possible adjust the note-spelling enharmonically for a whole phrase, to avoid these awkward intervals.

(See also *Note-spelling*, p. 85.)

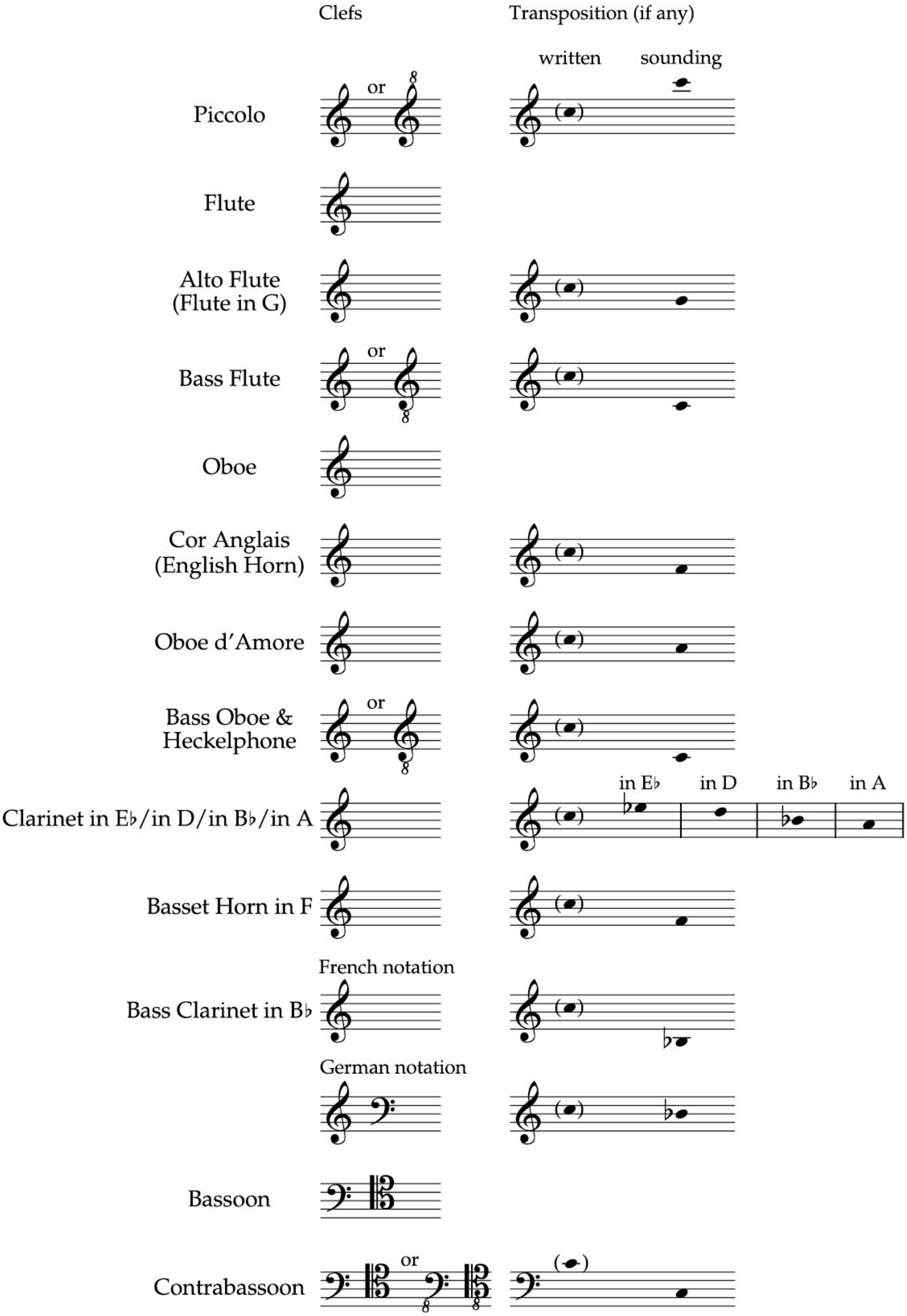
WOODWIND

Clefs

Flutes, oboes, clarinets and saxophones appear in the treble clef only.

Bass clarinet parts should be written for the B♭ instrument, and notated in the treble clef, a ninth higher than sounding (this is known as ‘French notation’).

TABLE 2: WOODWIND INSTRUMENTS clefs and transpositions


Clefs
Transposition (if any)
written
sounding
Piccolo
or
Flute
Alto Flute (Flute in G)
Bass Flute
or
Oboe
Cor Anglais (English Horn)
Oboe d'Amore
Bass Oboe & Heckelphone
or
Clarinet in E♭/in D/in B♭/in A
in E♭
in D
in B♭
in A
Basset Horn in F
French notation
Bass Clarinet in B♭
German notation
Bassoon
Contrabassoon
or

For saxophones, see Table 7: *Wind band clefs and transpositions*, p. 540.

This transposition reflects the fingering and clef of the other clarinets. For clarity it may be worth stating ‘in B♭’, because bass clarinets in A are still found. B♭ parts may also be found (usually in older music) written a tone higher than sounding (‘German notation’), using the bass and treble clefs according to range. If this transposition is used (e.g. to match original performance material) then this must be stated: ‘bass clarinet sounding a tone lower than written’, since the octave of the part may not be obvious from an opening passage in the treble clef. A part specifically for a bass clarinet in A should use the French notation, written a minor tenth higher than sounding.

The bassoon appears in the bass clef and, for high passages, the tenor clef. Some players prefer to read a very high part (e.g. going up to E, a tenth above middle C) in the treble clef, rather than having several ledger lines in the tenor clef. Consult the individual player before using the treble clef. The contrabassoon may move into the tenor clef for high passages.

Do not write low notes in the tenor clef (this sometimes occurs when a second bassoon part is copied directly from a score in which the first two players share a stave).

Octave-transposing instruments

The piccolo is written an octave lower than sounding; the contrabassoon, bass flute, bass oboe and heckelphone an octave higher than sounding. It is unnecessary to use the octave-transposing clefs in a playing part, but they are helpful in a score (see *Octave-transposing clefs*, p. 506).

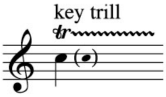
Octave transpositions to replace ledger lines

Reserve octave signs for the uppermost notes of the flute and piccolo (above about four ledger lines). The range of other woodwind instruments is such as to make octave transpositions unnecessary. For woodwind players, a particular pitch represents a particular fingering, and octave displacements are therefore visually confusing. This is especially true for clarinets, which have different fingerings for different octaves, as the instruments overblow at the twelfth, not the octave.

Techniques

Key trills (Timbre trills)

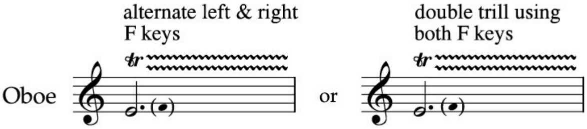
This is the trilling of two different fingerings for the same pitch. Give an indication such as *key trill* or *alternative fingering*, and write in the trilling note, to clarify that this is not a conventional trill with the upper neighbouring note:



(For alternating normal and harmonic notes, see *Harmonics*, below.)

DOUBLE TRILLS

Double trills are possible on an instrument that has two keys for the same pitch. This applies to certain pitches available on the oboe. Double trills alternate left- and right-hand fingerings for one of the trilling pitches, which allows the trills to be at double speed. Notate the double trill with two trill lines. The written trilling note is specifically added in these examples to clarify at a glance that the techique required is not a timbral trill. It is useful to indicate which keys to alternate:



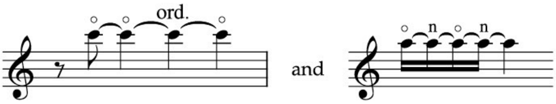
(Berio uses this notation in *Sequenza VII*.)

Harmonics

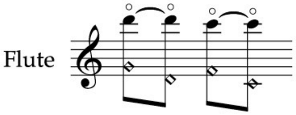
Harmonics are upper partials produced by overblowing the fundamental without altering the fingering. The sound is transparent, not so resonant, and less secure than that produced by standard fingering. A harmonic is notated as a small circle over the sounding pitch.

On the clarinet and bassoon, special fingering can achieve harmonic-sounding notes. Use the same notation as for a true harmonic.

Each harmonic note takes a circle. A non-harmonic note of the same pitch that follows a harmonic is labelled *non arm.*, *ord.*, *norm.* or *nat.* (*norm.* or *nat.* may be abbreviated to *n* to save space):

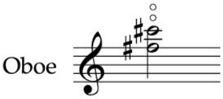


A flute can use different overtones of a fundamental for timbral effect. When a piece alternates different overtones, indicate the fundamental (the fingered pitch) as a diamond-shaped notehead below the sounding pitch:



On the flute, ordinary octave harmonics do not require this notation: use the conventional harmonic circle above the sounding pitch, as described above.

Double harmonics are possible on the oboe but require special fingering, which should be given on the advice of the oboist. They are notated with two harmonic circles above the chord:



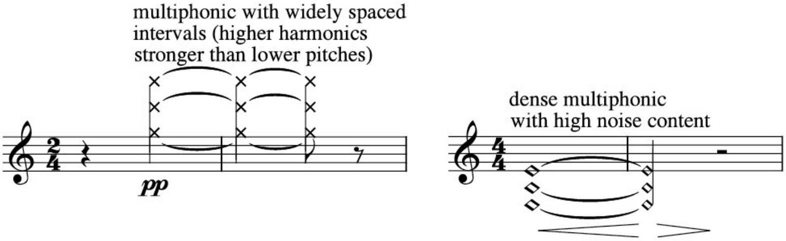
(For further reading, see Peter Veale and Claus-Steffen Mahnkopf, *The Techniques of Oboe Playing: a Compendium* (Bärenreiter, 1994).)

Multiphonics

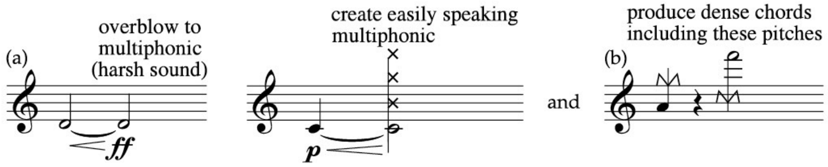
Multiphonics can be produced by either over- or under-blowing a fingering for a single pitch, or by using special fingerings. (See also *Sung and played pitches to produce multiphonics*, p. 251.) The result is a complex pattern of vibrations in which two or more pitches are perceived simultaneously, the pitches being of unequal quality. A multiphonic will frequently comprise more complex timbres and pitches than can be easily notated – or even quantified.

For a non-specific (or non-specifiable) multiphonic, it is sufficient to indicate that a multiphonic should be produced, and to show the approximate pitch area required – or the outer extremes, if control of the upper end of the range is required. Use a contrasting notehead such as crosses or diamonds: diamond notes are more legible for minims and semibreves (see example below; also, extract from Goehr, *Paraphrase*, p. 259).

The multiphonics that result from certain fingerings will sometimes vary between players and between instruments. Therefore it is more helpful to describe verbally the type of sound required than to prescribe a chord that may or may not be realistically attainable, or where the pitches may be obscured by predominant timbre noise:


multiphonic with widely spaced intervals (higher harmonics stronger than lower pitches)
pp
dense multiphonic with high noise content

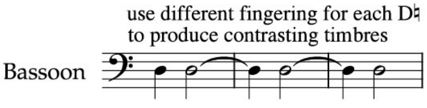
Use an ordinary notehead to indicate the pitch of a multiphonic based on a given fundamental (a), or one that is to include a specific pitch or pitches (b). Either give a verbal instruction to play a multiphonic, or for repeated use place an ‘M’ through the stem (the ‘M’ requires definition at its first appearance):

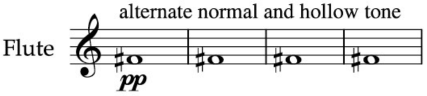

(a)
overblow to multiphonic (harsh sound)
ff
create easily speaking multiphonic
p
and
(b)
produce dense chords including these pitches

Multiphonics that are very definitely pitch-specific may be written as chords. These require special fingering. Indicate special fingerings as well where a particular multiphonic depends on it (for example, all double reed multiphonics require this). The fingerings are a useful reference, even if they cannot be guaranteed to transfer to an individual instrument.

Fingering

Where appropriate, provide fingering for multiphonics and for microtones. When alternative fingering for a single pitch is required in order to produce contrasting timbre, the fingerings are usually best left to the player, since those most suitable depend on the instrument, the player, the reed and embouchure:


use different fingering for each D♮ to produce contrasting timbres
Bassoon


Flute
alternate normal and hollow tone
pp

(See also *Tone Qualities*, opposite.)

Fingering is best given as a chart for the keys and/or holes. The standard symbols for fingering should be placed directly above or below the relevant note, and are:

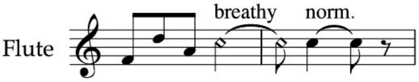
○ = open
● = closed
◑ or ◒ = half open

For the flute, a horizontal arrangement is most helpful. A vertical arrangement is best for other instruments. (For examples of fingering charts, see Alfred Blatter, *Instrumentation, Orchestration*, and Kurt Stone, *Music Notation in the Twentieth Century*.)

For repeated use of certain fingerings (e.g. for multiphonics) indicate the fingering charts in a preface. Allocate a number to each fingering and place it in the music as required. Frame the numerals in a distinctive way, to distinguish them from rehearsal marks.

Tone qualities

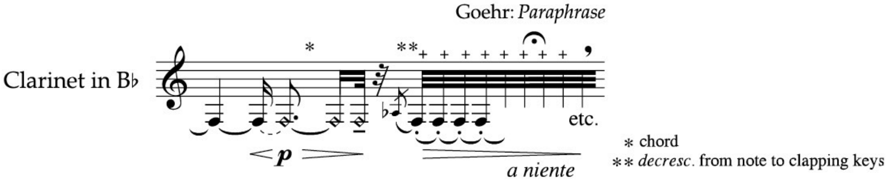
The occasional variation in tone quality can be indicated in words, e.g. 'play with different fingering to make a very soft sound'. Contrasting noteheads may differentiate other tone qualities from normal notes. 'Breathy' tone, commonly used for the flute, is often defined with an open diamond notehead. Provide a verbal definition for clarification (and to distinguish it from a harmonic):



In *Sequenza XII* for bassoon, Berio uses small circles to indicate contrasting timbres. This is a very economical notation and should be placed directly above each relevant note:

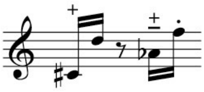
○ finger for a bright timbre
● finger for a dark timbre
◑ between a bright and dark timbre

Verbal instructions are the clearest means of indicating the balance of tone and timbre:

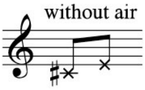


Key slaps

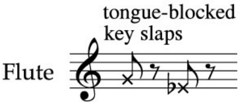
Most commonly found in flute music, a key slap may be exaggerated to articulate a blown pitch. To indicate this, place a '+' or '×' sign above the stave (no explanation is needed):



Key slaps may be articulated without blowing the pitch. It is important to differentiate in the notation this technique from the one above: use crossed noteheads at the fingered pitches. Define the technique at the start of the piece or at its first appearance, to clarify that no air is blown through the instrument to sound the pitch:



When a flautist blocks the embouchure hole with the tongue the key slap sounds about a major seventh below the fingered pitch. Notate the fingered pitch and give a verbal instruction above the stave:



(For other unconventional flute techniques, see Robert Dick, *The Other Flute: A Performance Manual of Contemporary Techniques* (Lauren Keiser, 1989).)

BRASS

Clefs, transpositions and key signatures

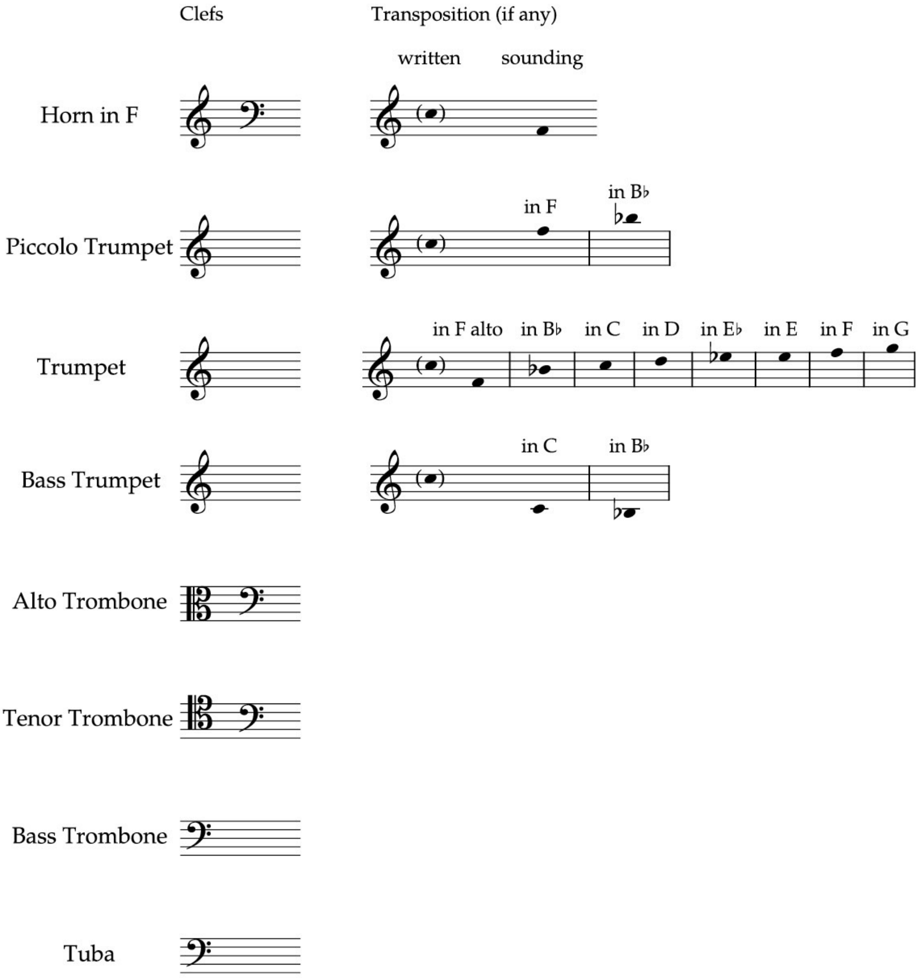
Trumpet

The trumpet that a player uses for any given part is a matter of personal preference, and is chosen according to the required timbre of that work. The player may, for example, choose a specific instrument for a particularly high passage. Players are used to transposing for their instruments: consequently, trumpet parts are often written in C as a matter of course, even though the player may use a trumpet in B♭, or the smaller trumpets in D or E♭, etc. Since B♭ is the universal instrument, when the range of the part is not exceptionally high or low, it is equally valid to write a part in C or B♭.

(For labelling the keys of trumpet parts in a score, see *Labelling transposing instruments*, p. 510.)

The trumpet appears only in the treble clef. Retain the treble clef for very low notes (pedal notes), either using ledger lines below the stave or, when this becomes difficult to read, with an *8va bassa* sign.

TABLE 3: BRASS INSTRUMENTS clefs and transpositions

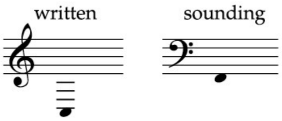

Clefs
Transposition (if any)
written
sounding
Horn in F
Piccolo Trumpet
in F
in B♭
Trumpet
in F alto
in B♭
in C
in D
in E♭
in E
in F
in G
Bass Trumpet
in C
in B♭
Alto Trombone
Tenor Trombone
Bass Trombone
Tuba

Horn

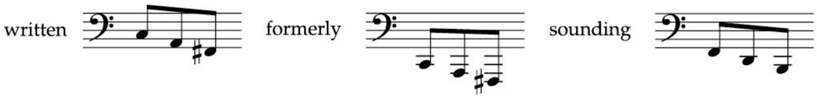
Horn parts are written in F. Only a part to be played specifically on a natural horn (without valves) would nowadays be written in any other key (e.g. to replicate an authentic sound in eighteenth- or nineteenth-century repertoire). Label the part 'Horn in F' since players are accustomed to reading old parts in every conceivable key.

Brass bands use a completely different instrument, the tenor horn in E♭ (see *Brass band*, p. 545; this instrument is sometimes used to replace horns in F in a wind band – see Table 7, *Alternative transpositions for parts*, p. 540).

For the horn in F, players prefer most of the instrument's range to be written in the treble clef, using ledger lines down to C:



Reserve the bass clef for notes below this pitch. Older music notates bass clef notes a fourth lower than sounding pitch, but it is more logical (and now the norm) to write these notes a fifth higher than sounding; the whole part is then transposed in the same direction. Additionally, it avoids ledger lines below the stave:



Since horn players encounter both bass clef transpositions, clarify the pitch at the first bass clef entry, or at the start of the music: 'Notes in the bass clef sound a fifth lower than written.'

Wagner tuba

Having a very similar range to the horn, Wagner tuba parts should be written predominantly in the treble clef, reserving the bass clef for low notes.

Wagner's inconsistent transpositions for his Wagner tubas, tenors in B♭ and basses in F, left a confused legacy. Scores were written for B♭ parts sounding down both a second and a ninth; F parts sounding down both a fifth, and an octave and a fifth. More recent parts have favoured notation as for horn in F. Tenor tubas in B♭ may be written a tone higher than sounding. (If in doubt, consult the horn player who is to play the part.)

Trombone and tuba

The tenor trombone uses the tenor and bass clefs – high notes should not be written in the treble clef. A second trombone part that shares a stave with the first trombone in a score may lie low in the tenor clef; when the part is extracted, it should be transferred to the bass clef to avoid low tenor-clef notes. A part specifically written for the alto trombone should use the alto clef (except for pedal notes, which require the bass clef). Bass trombone and tuba use the bass clef only. In a performance part, the lowest notes of the tuba should use ledger lines rather than an octave sign.

Parts for B♭ and E♭ tubas (also known as 'basses') are transposed into the treble clef in brass band music and similarly used as an alternative transposition in wind band music (for brass band conventions, see Table 9, p. 547; for wind band conventions, see Table 7, p. 540).

Key signatures

Trombones and tubas take key signatures; trumpets and horns usually do not. Horn players, in particular, are so unused to reading key signatures that it is better not to use them. (For wind band conventions, see *Transposition and key signatures*, p. 539; for brass band conventions, see *Clefs, transposition and key signatures*, p. 546.)

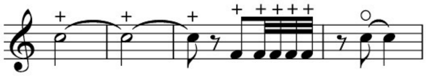
Mutes

Brass-instrument mutes are indicated *con sord.* or *mute*, and cancelled by *senza sord.* or *open* (*aperto* in Italian). On the horn the '+' sign is reserved exclusively for hand-stopping. For trumpet and trombone, the '+' sign indicates hand position over the bell, e.g. with a plunger or a harmon mute (see *Trumpet and trombone mutes*, p. 264).

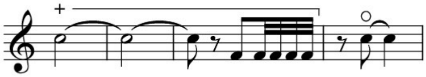
(For positioning mute instructions in a part, see *Mute instructions*, p. 563; for mute instructions on a shared score stave, see *Mutes*, p. 530.)

Horn hand-stopping

Hand-stopping is indicated by a '+' sign, placed above each hand-stopped note. The next open note is indicated with a circle over the note (and not by *open*, which implies removing a mute). A short passage of hand-stopping may extend a bracket for its duration:



or



It is useful to include the '+' sign on each tied note, or at least as a reminder after a system break.

There are two methods of hand-stopping. These are described here, since, when a hand-stopped glissando is written, the notation should correctly apportion open and closed notes (see *Horn hand-stopped glissando*, p. 266).

The normal method of hand-stopping is to insert the hand fully into the bell. This produces the sizzle effect when overblown, which is indicated *cuivré* or *brassy*.

Another effect is made by moving the right hand slightly into the bell, bending the air column and lengthening the tube – which results in a muffled tone. This is the method of stopping used on the hand horn. It is sometimes notated as ⊕ (half-stopped).

Trumpet and trombone mutes

An instruction to mute is taken to refer to a straight mute unless another type of mute is specified.

Give an instruction to change mute to a different mute (e.g. *to cup mute*) as far in advance as possible. The former mute does not require a *remove mute* instruction.

HARMON AND PLUNGER MUTES

Both these mutes are characterized by their 'wa-wa' sound. The plunger or hand alone produces its effect by covering and uncovering the bell. The harmon mute works by the player's hand covering and uncovering the stem (tube).

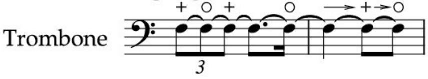
A '+' sign and circle represent the hand positions:

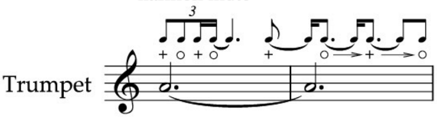
+	covered
○	uncovered
○ ⟶ + ⟶ ○	gradually cover and uncover
○+ +○	suddenly cover and uncover
○+ 〰〰〰	trill between covered and uncovered

Harmon mute: The stem (tube) itself can be in one of three positions: fully pushed in (*stem in*), fully extended (*stem out*), or completely removed (*stem removed*). It may also be positioned halfway between (*stem half in/out*). The stem will be fully pushed in unless otherwise indicated.

MUTE OR HAND POSITIONS IN RHYTHM

Notate changes of mute position or hand position either by showing each change as a separate rhythm and using tied note-values or, if the tied values make reading complicated, as a line of rhythm above the stave:

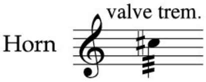




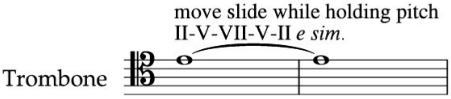
Techniques

Valve tremolos

A tremolo between two alternative fingerings of the same pitch is written as a tremolo. Give the indication *valve trem.* so that the notation is not confused with flutter-tonguing:



On the trombone, a similar effect is obtained by oscillating between different slide positions of the same pitch. Indicate the slide positions above the stave with roman numerals:

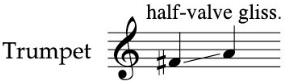


Glissandos

CONVENTIONAL GLISSANDO NOTATION

On the trombone, moving the slide (to the maximum interval of a tritone) can produce a continuous microtonal glissando. Across a wider interval the player combines a slide glissando with a lip glissando (this is the technique used in the trombone example, p. 266).

On valved instruments, the player performs a glissando by combining the use of valves with a slide over harmonics (see also *Harmonic* (*or lip*) *glissando*, p. 266). An instruction *half-valve gliss.* indicates that the valves are to be only partially depressed. This produces a deliberate blurring of intermediary pitches:



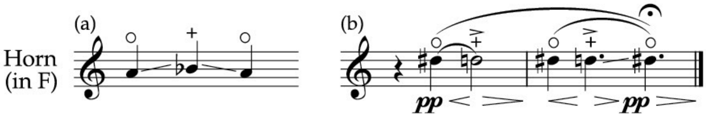
This technique is often employed even if not specifically prescribed: the player decides how to articulate a glissando according to its context. However, it may be useful to specify *half-valve gliss.* so as to differentiate it from other types of glissando (i.e. those described in the following paragraphs).

HORN HAND-STOPPED GLISSANDO

Both hand-stopping methods (see *Horn hand-stopping*, p. 263) can produce glissandos. The action of moving the hand in the bell can produce a change of pitch of up to about a semitone in the middle register (less in the higher). It is the player who must take account of the changing pitch: the notation of a part should remain in its same transposition (i.e. in F).

The hand-stopping technique chosen depends on which note is designated as open and which as closed: a hand-stopped glissando requires one or other of the notes to be stopped. The '+' sign must indicate hand-stopped notes for both types of glissando.

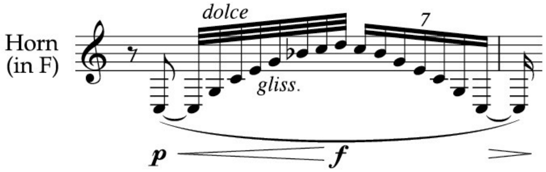
When the stopped note is a semitone higher than the open note, the glissando is achieved by pushing the right hand fully into the bell (a). When the stopped note is a semitone lower, the glissando is created by stopping with the hand-horn method, in which the air column is lengthened and the pitch drops. This method is used in the following extract from Britten's Serenade for tenor, horn and strings, (b):



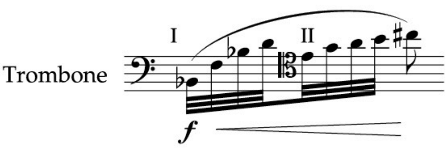
HARMONIC (OR LIP) GLISSANDO

The player slides over a harmonic series to produce a glissando. Intermediary overtones should be notated when each is to be placed rhythmically:

Benjamin: *At First Light*

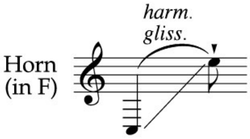


Only in two circumstances is it necessary to label the fundamental pitch or, for the trombone, the slide position: either when this is not evident from the starting note, or if (as below) the harmonic series changes during the course of the glissando:



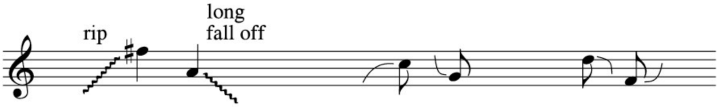
For the horn, indicate the pitch letter of the fundamental of the harmonic series (see *Notes from a specified harmonic series*, below).

When the glissando is unmeasured, place a glissando line between starting and finishing notes, with a *harmonic* or *overtone gliss.* instruction:



GLISSANDOS FROM THE JAZZ REPERTOIRE

Works in the jazz medium use a diagonal trill line or curved glissando line to 'swoop onto' or to 'fall off' a note, usually from or to an unspecified pitch. There are many terms that define the sounds produced by these different gestures; the most common term transferred to the classical repertoire is the 'rip'. Such slides, especially those onto a note, are usually fast, but length may be specified verbally:



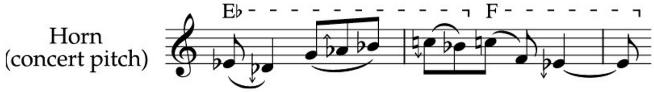
(For conventionally notated glissandos, pitch bends and chromatic glissandos, see sections under *Glissandos*, p. 247.)

Notes from a specified harmonic series

When a note is to be played as an upper partial of a specified fundamental, rather than as a more secure harmonic with a different fundamental (and closer to equal-tempered tuning), a verbal instruction may be added: for example, 'do not correct the tuning of natural harmonics'. Microtonal accidentals may be used, to indicate the tuning of harmonics that differ from equal temperament (as in the following example, p. 268), although these are for the benefit of the score reader and are not required by the player.

On the trombone, a roman numeral indicates the slide position to be used (see trombone example, opposite).

For the horn, both the transposed part and score (whether at concert pitch or transposed) should indicate, above the stave, the root of the harmonic series. Many players prefer the fundamental to be indicated at its sounding pitch, as if the player was using a natural horn crooked in that key (this technique is used in Ligeti, *Horn Trio* and Adès, *Living Toys*):



(For full score layout, see *Stave allocation for woodwind and brass instruments*, p. 530; for part preparation, see *Combined-instrument parts*, p. 581; see also *Wind band*, p. 539; and *Brass band*, p. 545.)

10

Percussion

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Allocating instruments to players

When a percussion set-up requires more than one player, distribute instruments amongst a minimum number of players. Allocate each instrument to a specific player. It is not acceptable simply to give each instrument a separate stave or line, without consideration as to who will play it. A single instrument should have an individual printed part (as is the case in many older scores) only when the player cannot play any other instrument.

Always consult an experienced player before making an allocation of many instruments and a number of players. It is sometimes necessary to try out a particular distribution before making a final commitment.

Guidelines

Allocate a group of instruments to each performer, ideally for that player alone to play. Performers prefer to play related instruments so that they can use the same type of stick to play different instruments (e.g. xylophone, glockenspiel and crotales, or bongos, tom-toms and bass drum).

If there are a number of large instruments, distribute them between players, so that one individual player does not need to cover excessive ground on the platform.

If possible, avoid sharing instruments between players. Should the concert programme contain other works with additional percussion requirements, then a player may not be able to move to a neighbouring player's instrument. However, it is a good policy to recommend how players should share. Then if a particular instrument cannot be accessed because of the set-up on the concert platform, the player can use a second instrument.

Player number allocation

For the purposes of instrument allocation in orchestral music, the timpanist is considered separately from the rest of the percussion section. When a percussionist plays timpani as well as other instruments, there is not this same distinction.

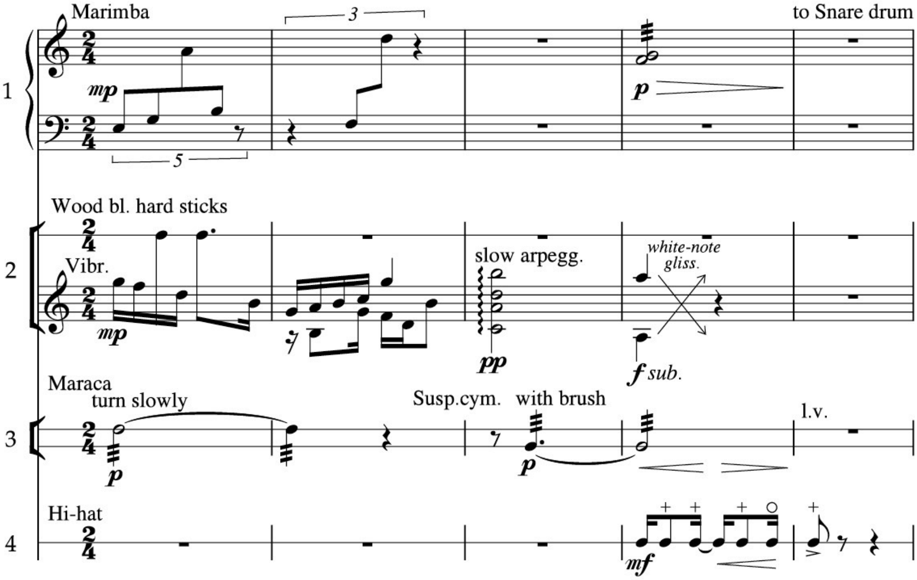
The hierarchy of player numbering in percussion parts is for convenience only and does not reflect an order of difficulty. Thus the most demanding part will not necessarily be allocated to player 1.

Score order of players

In a full score and playing score (see *Percussion playing-score layout*, p. 588) arrange staves (or lines) in player order so that player 1 takes the top stave or line(s), player 2 the next, and so on. Label staves by player number in the margin.

If some players play only tuned percussion and others exclusively instruments of indefinite pitch, group the tuned percussion together either at the top or the bottom of the section, e.g. as players 3 and 4, or as players 1 and 2 (as below).

Sample percussion score


Marimba
3
to Snare drum
mp
p
1
5
Wood bl. hard sticks
2
Vibr.
mp
slow arpegg.
white-note gliss.
pp
f sub.
Maraca
turn slowly
Susp.cym.
with brush
l.v.
3
p
p
Hi-hat
4
mf

(For full-score layout, margin brackets and barring, see *Stave allocation for percussion*, p. 533.)

Listing instruments and specifications

List all instruments at the front of a score and playing part. For completeness provide a list of all instruments required, and then a separate list for each player. This information is important in a part, as the player may never see the full score. It is best to compile the list once the part is completed, so as to be sure it includes all instruments.

For convenience, group instruments into (1) instruments of definite pitch (tuned percussion), and (2) instruments of indefinite pitch.

When two players share an instrument, indicate this in the listing for both players, so it is clear that they do not need an instrument each, for instance, 'player 2: bass drum (shared with player 3)'.

Instrument specification

TUNED PERCUSSION

When a keyboard instrument does not necessarily have just one standard size, state when a particular range is required.

For other tuned percussion instruments, such as crotales, tubular bells, tuned cowbells and tuned gongs, indicate the required range or individual pitches.

Where applicable, state the written pitch of octave-transposing instruments (see *Octave transpositions*, p. 276); e.g. 'xylophone (4-octave range) sounding one octave higher than written'.

(See also *Timpani*, p. 296.)

INSTRUMENTS OF INDEFINITE PITCH

Specify instruments by relative pitch (e.g. '3 tom-toms, low, medium and high', or '2 high cowbells of different pitches') or by relative size, if this is relevant (e.g. '2 bass drums, large and very large'). Note that cymbal sizes do not relate necessarily to pitch (cymbals send out a multiplicity of pitch impressions, depending on context), and so should be described by relative pitch and not size.

Specify any extra equipment: e.g. 'double bass bow (for cymbal)'.

Labelling

Abbreviations

It is important to clarify abbreviations by giving each instrument name in full, either at its first entry or listed at the outset. When instrument names are not in the player's native language it is useful to define abbreviations in brackets in the instrument listing: e.g. 'il tamburo piccolo (tamb. picc.)'.

The following different language equivalents can cause confusion because of the similar names for different instruments:

English	French	Italian	German
tambourine	tambour de basque	tamburo basco tamburello	Tamburin Schellentrommel
tabor	tambourin provençal	tamburo provenzale tamburino	Provenzalische Trommel Tambourin
timpano(i)	timbale(s)	timpano(i)	Pauke(n)
timbales	timbales cubaines (timbales) créoles	timbales timbales latino-americani	Timbales

Never use ambiguous abbreviations: T-T could be either tom-toms or tam-tam. Similarly, *s.c.* means *senza corde* (without snares) and not suspended cymbal (abbrev. 'susp. cym.').

Labelling instrument entries

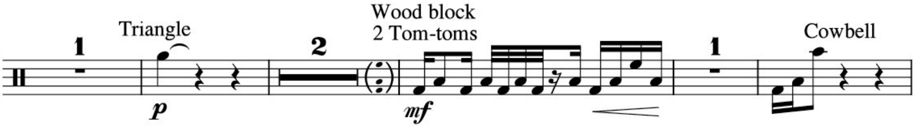
Frequent labelling is essential in order to see immediately which instruments are required when returning to any given point during rehearsal.

For instruments of indefinite pitch, once an instrument has been labelled it can be identified by its stave position (see *Assigning instruments to positions on the five-line stave*, p. 279). However, frequent labelling is important in a playing part – a player cannot be expected to remember the location of every instrument from stave to stave. Every piece has a unique layout and in the course of a concert a player may encounter many different stave positions for the same instrument.

PLAYING PART AND PLAYING SCORE

The position of instrument labels depends on the complexity of the set-up.

When a player is to alternate a number of instruments at one time, it is clearest to label each instrument beside its first entry. (This is provided that instrument alternations do not occur so frequently that labels beside each entry clutter the passage.) This includes a new instrument that joins an existing set-up (see last bar):



When there is frequent interplay between a group of instruments, label them all at the start of each system, to be clear of the passage-work (see triangle, cymbal and bass drum example, p. 279).

It is acceptable to use both types of labelling in the same piece according to the frequency of alternating instruments.

When a part requires no player number (e.g. a single-player percussion part), then labels may be placed in the margin (see Table 1, p. 285).

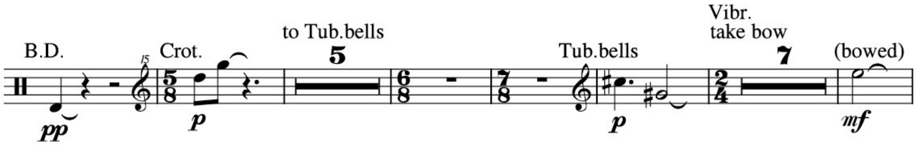
FULL SCORE

Place labels either beside the respective percussion entries, or at the beginning of each system, page or double-page spread. The greater the number of instruments, the more helpful it is to have frequent labelling.

LABELLING INSTRUMENT AND STICK CHANGES

In a full score, place instrument and stick changes beside the first entry to which they apply.

In a part, it is helpful to place instructions for changes ('take . . .' and 'to . . .') at the first available rest, to allow maximum time for the changes. (This is unnecessary for a short rest, as the player will readily see the new instrument label.) When many rests intervene before the new instrument entry (compressed for reasons of space constraint in the example below), restate the instrument (or stick) change at the new entry:



(See also *Labelling instrument changes*, p. 559.)

Using symbols

The use of pictorial symbols for instrument and stick labelling is potentially ambiguous, since many of the symbols that have been recommended in orchestration books are open to different interpretations. The symbols vary from user to user: the symbol ⊙ may be one composer's gong and another's rim shot. During a performance players do not have time to work out what they mean, nor can they be expected to remember which is which in a particular piece. To avoid ambiguity, use words.

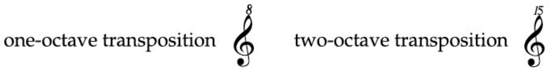
If sticks are designated, use words for these as well, as stick diagrams tend to be too small to read from a distance (see also *Sticks, beaters and mallets*, p. 292, and *Performance instructions*, p. 491).

Tuned percussion

Octave transpositions

Use as few ledger lines as possible for percussion music – consider how far players may be from their music stands. Retain ledger lines for the occasional note, but use octave signs for a passage that would otherwise involve many ledger lines.

For this very reason, glockenspiel and crotales should be written two octaves lower than sounding, with the xylophone one octave lower than sounding. However, as these instruments are occasionally written at pitch, or the glockenspiel one octave (rather than two octaves) lower than sounding, clarify the pitch of the part with a clef showing the transposition:



Alternatively, state the written octave with the instrument list at the outset.

(See also *Octave-transposing clefs*, p. 506.)

Clefs and key signatures

Instruments whose notation fits comfortably in one clef should stay in the one clef. The metal-bar instruments (glockenspiel and vibraphone) should always use the treble clef, since their lowest written notes are only a fourth and fifth respectively below middle C. Instruments that additionally encompass a lower range may change into the bass clef as necessary (see *Number of staves for one instrument*, opposite).

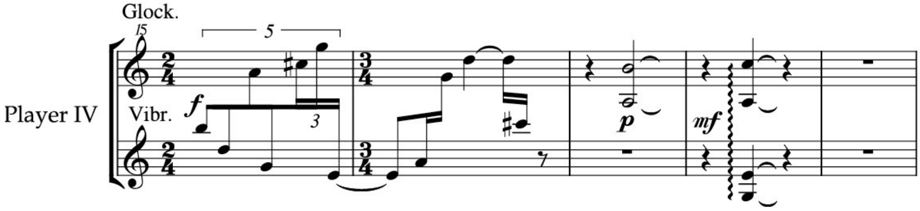
Key signatures may be used for all tuned percussion, especially if this will save writing many accidentals. However, in some circumstances, a key signature may be omitted from a percussion part for practical reasons (see *Brass band: Tuned percussion*, p. 546).

A key signature must be added if a treble or bass clef is introduced for a new instrument after a non-pitched percussion clef (see *Sample wind band score*, p. 542).

(For timpani, see *Key signatures*, p. 296.)

Number of staves for one player

If possible, use a single stave for a succession of different tuned percussion. The more vertically compact the layout of the part is, the faster the player can read it (see example, p. 275). Use a second stave only when notation on one stave would be confusing, e.g. when there is a fast interchange between different pitched instruments. The higher-pitched instrument appears on the upper stave:



Keyboard percussion

NUMBER OF STAVES FOR ONE INSTRUMENT

Use a single stave for one instrument, as this is the most compact layout.

A marimba part that exploits the large compass of the instrument (thus requiring clef changes) should use two staves, to give a better visual indication of the distance between the notes (the lowest octave is about 60 cm / two feet long!). The part may interchange one and two staves as necessary, although in solo music it may be better to use two staves throughout, provided that there can be convenient page-turns.

When a part on two staves is a single melodic line – either for a single instrument (e.g. marimba) or for two or more tuned percussion – it is acceptable to write it as a single line of rhythm, and use rests only when they are part of that rhythm (see example above, bars 1–2; see also *Single-line passage-work*, p. 317).

DAMPING

The vibraphone has a damper pedal. To indicate notes are to be sustained in the pedal, use the same notation as for the piano: the symbol 𝆮 ✻ or Ped.⌊∧⌋, placed below the stave. The stylised sign 𝆮 has the advantage of being most conspicuous, as it stands out from other text instructions (see *Damper pedal: Notation*, p. 335). As in piano music, it is only necessary to indicate essential or unconventional pedalling (see *Damper pedal: Introduction*, p. 334).

Tubular bells are fitted with a damping mechanism, although they are usually written with some degree of residual resonance (*l.v.*) in mind. Should damping be required, use the same notation as for piano and vibraphone (even though in older-style models all the tubes are damped when the damper pedal is depressed). Modern models have a damper pedal that is depressed in order to let the bells resonate. However, this pedal may be deactivated so that all notes can resonate.

On vibraphone and tubular bells, individual notes may be damped by hand (see *Finger (or hand) damping*, p. 291).

VIBRAPHONE VIBRATO

The vibraphone motor produces a vibrato, and on some instruments the speed of this can be varied: *slow/medium/fast vibrato*, etc. The use of vibrato is indicated *motor on* or *con vibrato*; if vibrato is not required, this is indicated *motor off* or *senza vibrato*.

Tremolos

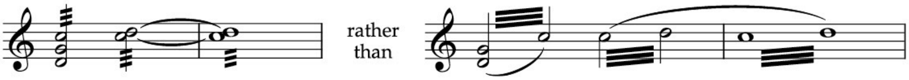
SINGLE-NOTE TREMOLOS

These must be written and not with the trill sign. Tuned percussion trills (with the exception of timpani) will be taken to mean trilling with the upper neighbouring note.

(See also *Single-note rolls*, p. 293.)

CHORD TREMOLOS

The percussion convention is to write two-note (or two-chord) tremolos as single chords. This notation is more concise than writing the notes or chords separately, as would be the case for other instruments:



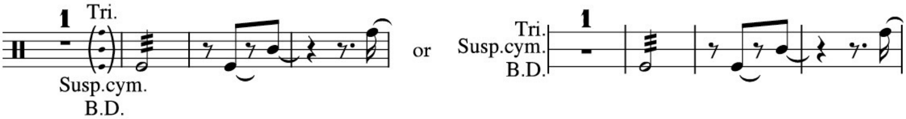
If tremolos should be measured, then the rhythm of the first beat should be notated in full (see *Measured tremolos*, p. 224).

Instruments of indefinite pitch

Using the five-line stave or line notation

Notate instruments of indefinite pitch on either a conventional five-line stave or on one to three lines. Since a percussionist is used to reading the five-line stave, a stave of either four lines or more than five is difficult to read and should not be used.

The most appropriate layout often depends on context. In an orchestral or percussion ensemble full score, single lines clearly differentiate instruments of indefinite pitch from surrounding staves of pitched instruments. Single lines also save vertical space. A layout of three instruments on a conventional stave becomes three separate lines:



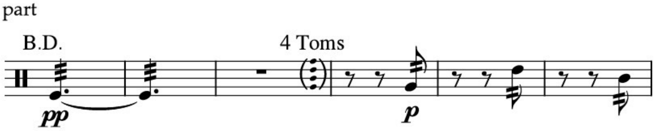
Notation on lines is preferable for one or two instruments (see *Line notation*, p. 282; also, *Layout of instruments of definite and indefinite pitch for one player*, p. 287).

For a multiple-instrument part, players prefer notation on one five-line stave (see *Multiple-instrument part (one player)*, p. 284).

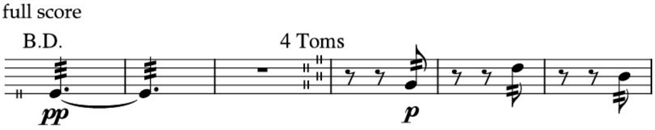
Clefs on the five-line stave

The treble and bass clef are used only for tuned instruments; do not use them for instruments of indefinite pitch (as in older editions) as this falsely implies definite pitch. Instead use a clef of two lines (the 'percussion clef') that 'cancels' any assumed pitch (see *Percussion clefs*, p. 6).

The percussion clef is placed in the middle two stave-spaces and applies to any notehead on the stave. To indicate the positions of given instruments amongst a group, define their stave positions with small noteheads in advance of their first entries:



In a full score, tiny percussion clefs may be placed on the relevant line or space to define the position of each instrument. However, these are too small to be of use in a part at the distance the player must be from the copy:



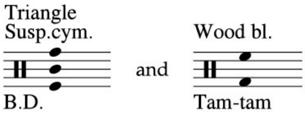
Assigning instruments to positions on the five-line stave

Position instruments on the stave according to their relative pitch (but see also *Related instruments*, p. 280). Percussionists generally arrange instruments so that the lowest-pitched is on the player's extreme left, the highest-pitched on the far right. (This reflects keyboard arrangement.) In such cases there will be a direct correlation between the notation and the physical set-up.

The precise hierarchy may depend on the musical context and the leading line. An instrument with a leading rhythmic role is clearest to read at the top of the stave.

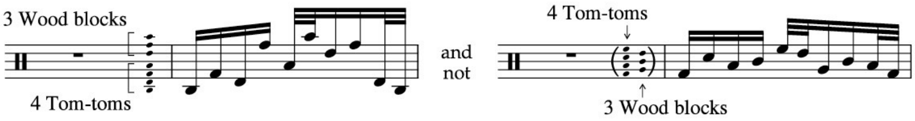
Allocate one line or space to each instrument so that an instrument in a passage can be identified by its stave position (see *Labelling instrument entries*, p. 274). Do not use the same line or space for more than one instrument.

Place unrelated instruments as far apart on the stave as possible:

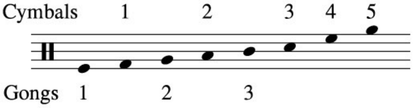


RELATED INSTRUMENTS

Place two or more of the same instrument on adjacent lines or spaces, or use both lines and spaces if necessary. Separate the position of groups of instruments on the stave. It is also visually helpful to place one group on lines, one group in spaces. Use one or two ledger lines rather than having dissimilar instruments close together in the middle of the stave – when the notation for groups of instruments interlocks, it is impossible to decipher at speed:



When it is intended that different groups of instruments form a particular sequence of relative pitches, arrange them accordingly, but only at the outset of the score and part:



The arrangement on the player's stave must replicate the physical arrangement of instruments (e.g. wood blocks arranged on a single bar) by separating the groups visually (as in the wood block and tom-tom example above).

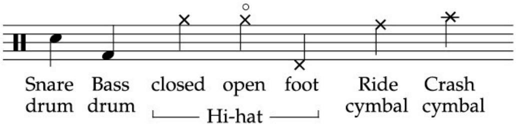
Should it be useful to number instruments, label the lowest as '1'.

Band parts and educational music

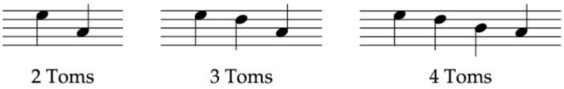
Percussion parts in educational music, show music, rock music, wind band and brass band music use the five-line stave. Position instruments on the stave according to their relative pitches. The stave position of instruments is usually that of the drumkit (see below).

STANDARD DRUMKIT

This always uses the five-line stave. There is no absolute uniformity, but the most standard positions on the stave are:



Tom-tom set-ups are as follows:

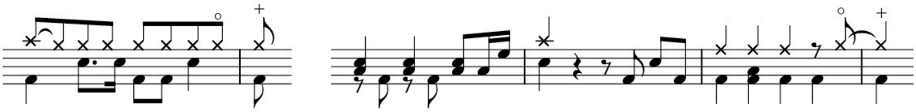


Other instruments are usually placed at the top of the stave. (Note that a kit part is essentially a guide and is unlikely to contain as much detail as the layout above provides.)

Some editions reverse the position of hi-hat and ride cymbals. However, the advantage of placing the hi-hat above the top line is that it is often the leading part, and crossed noteheads are most legible above the line (see *Crossed noteheads*, p. 282).

The closed hi-hat uses the '+' sign after an open note (but is otherwise unnecessary). Above a tied note the '+' sign indicates closing the hi-hats without striking – i.e. the action alone of the footpedal (see *Cymbals*, p. 297).

A drumkit part is usually written in two-part notation, although simplified to a single part when instruments are not playing together. A cymbal line normally takes separate stems since crossed notes are most visible on their own stems and since this line usually has independent rhythms:

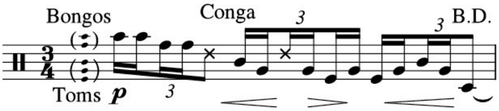


Labelling: it is usual to give a diagram of the drum positions on the stave at the beginning or end of the music, and only to label the entrance of an unusual instrument during the course of a piece.

Crossed noteheads

Jazz and rock music notation has a convention of using crossed noteheads for cymbals (sometimes diamond-shaped notes for minims – although combining the different notehead shapes is not recommended). This is so that the cymbal can be distinguished easily from the rest of the kit notes (the cymbal frequently has the most intricate part).

In any other context, crossed noteheads may be used to distinguish specific instrument entries graphically. In a multiple-instrument part they alert the player to a change of instrument in a fast, complex passage. Picking out an instrument in the middle of the stave with a crossed notehead is visually very helpful:



When instruments of definite and indefinite pitch are played together or closely follow one another, a crossed notehead is essential to distinguish an instrument of indefinite pitch on a five-line stave (see *Layout of instruments of definite and indefinite pitch for one player*, p. 287).

A succession of crossed noteheads is much more difficult to read (being less solid) than ordinary noteheads, and so should be used sparingly. In jazz and rock music, repeat-bar signs (𝄎) save a part with many crossed notes from looking too fussy.

Crossed notes should not have more than one function in a work or their use will be confusing.

(See *Crossed noteheads*, p. 11; also, *Finger (or hand) damping*, p. 291; *Beating spots (Striking points)*, p. 295; and *Strike while damping*, p. 298.)

Line notation

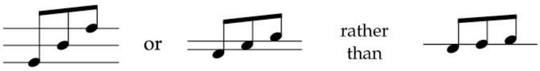
CLEFS

It is not necessary to include the percussion clef with line notation, since there is no assumed pitch to cancel. However, it is used in some editions (see *Percussion clefs*, p. 6).

NOTEHEADS ON LINES, SPACES OR BOTH

The layout principles are the same as on a five-line stave (see *Assigning instruments to positions on the five-line stave*, p. 279).

Each instrument should take a separate line or space. It is not a good idea to have successive instruments on one line; it is better to warn the player of the entry of another instrument by adding another line (see *Sample percussion score*, player 3, p. 272). When all instruments are placed exclusively on lines or in spaces, the visual difference between them is more marked than when notes are placed on both lines and spaces:



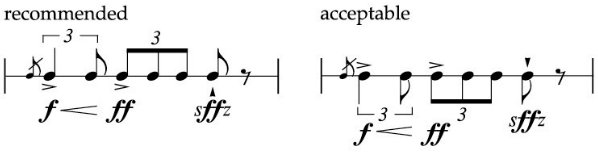
(See also Table 1, p. 285.)

LINE SPACING

Two or three lines are easiest to read if spaced more widely than normal (as in first example, above). However, notes placed in spaces are clearest to read when the lines are a conventional stave-space apart, as the noteheads fit the whole space.

STEM DIRECTION (PART FOR ONE PLAYER)

A single-instrument part on one line may take either stem direction. Grace notes take up-stems, regardless of the prevailing stem direction. Up-stems have the advantage that articulation and dynamics are then placed together below the line, and tuplet indications above the stems are clear of dynamics:

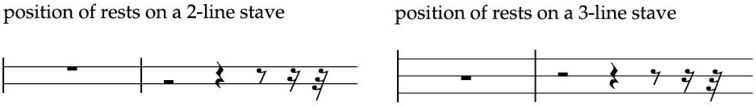


In a score all players with parts on a single line take the same stem direction (see example, p. 534).

When a player has two or more lines, stems may point into the middle of the group of lines, as they would do on a five-line stave (see example for three suspended cymbals, p. 290).

PLACING RESTS

Centre each rest around the middle space or on the middle line:


position of rests on a 2-line stave
position of rests on a 3-line stave

When there are multiple lines, place a rest that is part of a beat on a horizontal level with adjacent notes. Place other rests at the centre of the group of lines (see Table 1, opposite).

(See also *Rests on a single line*, p. 38.)

Multiple-instrument part (one player)

By far the best layout is one five-line stave, even if this entails placing notes on one or two ledger lines to create sufficient lines for the required instruments (see Table 1 (a)). Players are most used to reading the five-line stave, and other configurations will, therefore, prove more problematic.

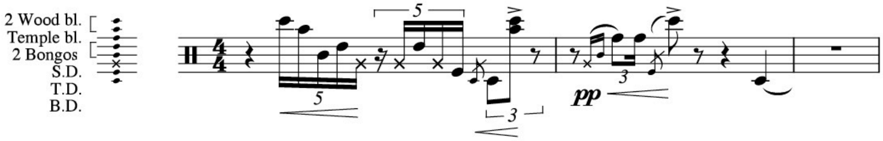
The five-line stave is vertically compact and thus quicker to read than a group of widely spaced lines. A part becomes harder to read the greater the depth of the system (Table 1 (b) and (c)). A solution that reduces the number of lines to a minimum is not easier to read should the notehead positions be difficult to distinguish (d).

When one five-line stave is insufficient for the number of instruments being used, introduce a second stave. (A good example of this practice is found in the percussion parts of Xenakis's *Rebonds* and *Komboï*, which use one five-line stave, expanding to two for the introduction of a second group of instruments.) Alternatively, create additional lines above or below the stave, separating them from the stave for visual clarity.

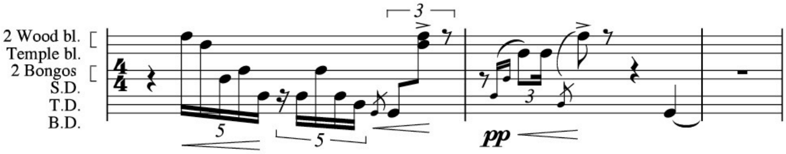
Given the above guidelines, provide sufficient staves (or additional lines) for there to be as many lines and spaces as instruments in a given passage. Thus the player can recognize each instrument from its position within the group. Do not move instruments onto fewer lines in order to save space, as this is confusing: players become accustomed to the unique layout of a piece. Only for an extended passage using fewer instruments, or a different group of instruments, is it acceptable to omit a group of lines.

TABLE 1: Comparative layouts for multiple-instrument part

(a) recommended layout*

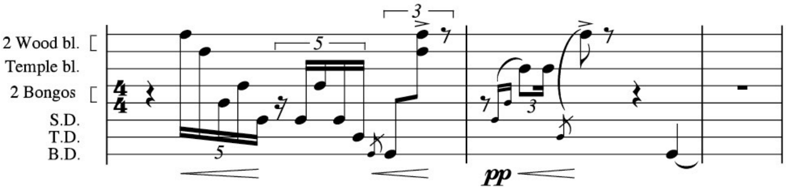

2 Wood bl.
Temple bl.
2 Bongos
S.D.
T.D.
B.D.
5
5
3
3
pp

(b) acceptable layout: each instrument allocated a line

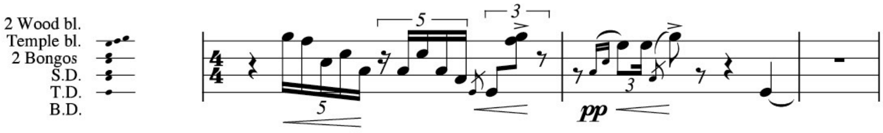

2 Wood bl.
Temple bl.
2 Bongos
S.D.
T.D.
B.D.
3
5
5
3
pp

The following examples are impossible to read:

(c) wide line-spacing


2 Wood bl.
Temple bl.
2 Bongos
S.D.
T.D.
B.D.
3
5
5
3
pp

(d) a minimum number of lines


2 Wood bl.
Temple bl.
2 Bongos
S.D.
T.D.
B.D.
5
3
5
3
pp

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* An instrument in the middle of the stave is allocated crossed noteheads for clarity. This should not be used if crossed noteheads indicate rim, rim shot or finger damping in the same piece.

MULTIPLE-INSTRUMENT PART AS A SINGLE LINE OF RHYTHM

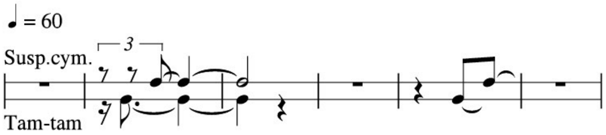
Notate multiple instruments as a single line of rhythm wherever possible, so that:

- the notes of all instruments played simultaneously join to one stem
- beams join the beats together
- the part requires only one set of dynamics (dynamics for individual instruments are used where necessary)
- the part requires only one set of rests, making the music simpler to read

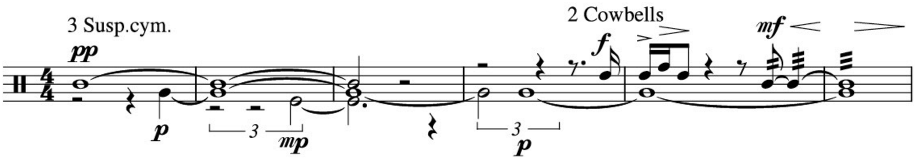
(See Table 1, p. 285.)

SUSTAINED-LINE PART (ONE PLAYER)

Overlapping sustained notes on different instruments should take separate stems and rests. Reverse the stems away from each other. At such a point that each instrument does not need a separate stem, join the parts into a single line of rhythm (see bar 5):



When there are more than two sustained parts, two stems must be placed in the same direction:

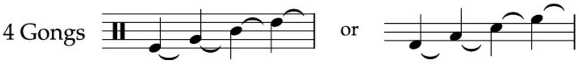


The same principles apply to the notation of tuned instruments.

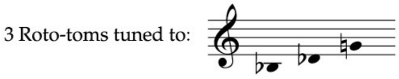
(See also *Damping*, p. 290.)

Defining specific and non-specific pitch

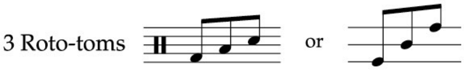
Instruments that are normally regarded as tuned are sometimes used without specific pitches. The outset of the score and part should therefore state this; e.g. '4 gongs, non-specific pitches: high, medium, low and very low'. The gongs are then notated as instruments of indefinite pitch:



A composer may wish to specify pitches for instruments that are frequently notated as indefinitely pitched, but which do also have specific pitches (e.g. cowbells and roto-toms). State the required pitches at the front of the score and part:



It is preferable to present the part without the specified pitches (the extra information involved in reading the pitches is of no relevance to the percussionist playing three similar instruments):



The full score may notate the true pitches for the benefit of the score-reader.

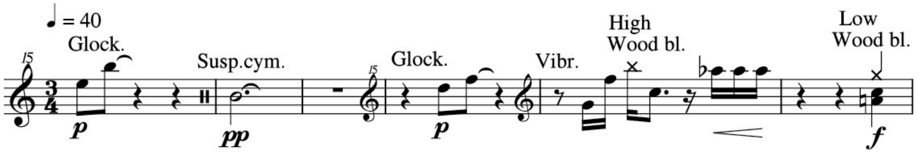
Layout of instruments of definite and indefinite pitch for one player

When instruments of definite and indefinite pitch alternate, use one five-line stave, to keep the layout compact.

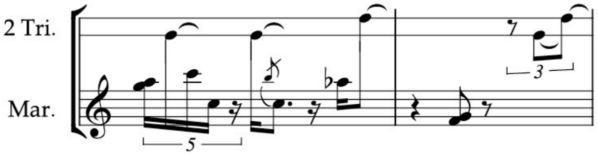
Place the percussion clef before the entry of an instrument of indefinite pitch. Note that if treble clefs show octave transpositions, they should be cancelled when transpositions no longer apply (see glockenspiel to vibraphone change, bar 4, below; see also *Exchanging ordinary and octave-transposing clefs*, p. 507.)

When pitched and non-pitched instruments occur together or in immediate juxtaposition it is often possible to notate both on one five-line stave. Use crossed noteheads for the instruments of indefinite pitch, to clarify which are without pitch. Place the crossed noteheads outside the stave: above the stave for instruments relatively higher than the tuned percussion; below the stave for instruments relatively lower. Use ledger lines if necessary, to create spaces for different instruments.

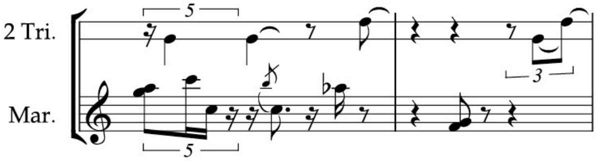
When two (or more) different instruments play consecutively, only one set of rests is necessary. Two instruments playing together require opposite stem directions (see last bar):



When a combined-instrument part would be unclear on a single stave, place instruments of indefinite pitch on a separate line or group of lines above or below the five-line stave. Where possible, preserve the single-rhythm part, as one rhythm is far easier to read:



and not



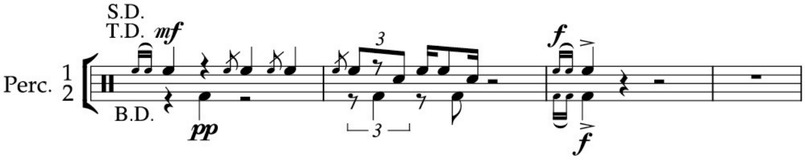
(See also *Sample percussion score*, player 2's part, p. 272.)

Two players on one stave

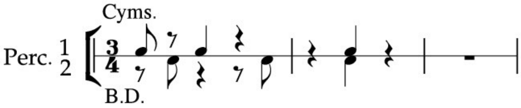
In a wind band and brass band full score, it is acceptable (and a convention) for two percussionists playing instruments of indefinite pitch to have their parts notated on a single stave, to save space. It is not a usual convention in an orchestral score, or in orchestral parts, so is best avoided unless space is very limited.

When two players share a stave, the player of the upper part takes up-stems, the player of the lower part takes down-stems. (Notes for two players should always be stemmed separately, since two noteheads on one stem would imply that one player plays two instruments.)

For clarity, place instruments for the up-stemmed player at the top of the stave, instruments for the down-stemmed player at the bottom of the stave. Allocate dynamics for each player. Identical rests may be shared:



To save further space in a score, the notes for the two players may be placed either side of a single line:



Players should not share a notehead, since, in percussion writing, a note with two stems means that one instrument is struck with two sticks (see *Stick allocation between hands*, p. 293).

Note duration

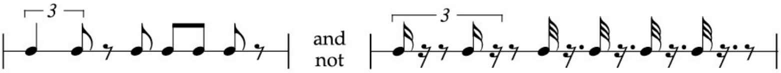
Role of articulation

A variety of articulation marks such as staccato dots, tenuto lines and accents may be used to convey relative weights of touch more economically than constantly shifting dynamic markings. For isolated strokes, allocate such markings only when an instrument is capable of differentiating staccato, tenuto or accented attacks from notes without marked articulation.

(See also *Immediate damping*, p. 292.)

Duration for dry instruments

Instruments with no sustaining power (xylophone, claves, wood blocks, high drums, etc.) should take note lengths that are convenient to read – do not attempt to reflect their brevity by using short notes that make rhythms look difficult:

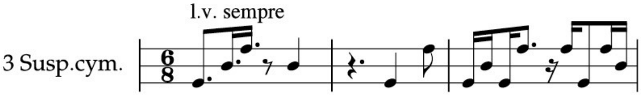


A staccato dot should not be used to indicate that a note has a naturally short duration.

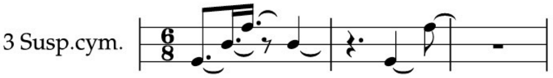
Long-reverberating instruments

It is very important to indicate whether the notes of long-reverberating instruments should be sustained only for their written duration or whether the sound should be left to die away naturally. Unless otherwise indicated, instruments will be damped at the first written rest (or as soon as practicable thereafter). Instruments that should be left to ring indefinitely need to be indicated *l.v.* (*laissez vibrer*; 'let ring'), or with an open tie (see *Laissez vibrer*, p. 72).

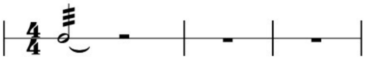
An extended passage of notes left to ring is indicated *l.v. sempre*. (Numerous open ties clutter the music unnecessarily.) For short passages, it is equally acceptable to use open ties for each note:



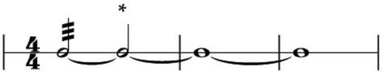
and



When an instrument that has been sustained with a roll is left to ring, it is essential to use an open tie or *l.v.* instruction. To notate the duration of the *laissez vibrer* with note-values might suggest that the first and subsequent tied notes (marked * below) should be re-articulated as necessary to preserve the continuous sound:



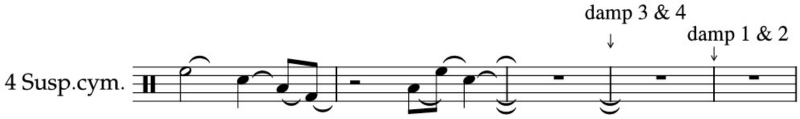
and
not



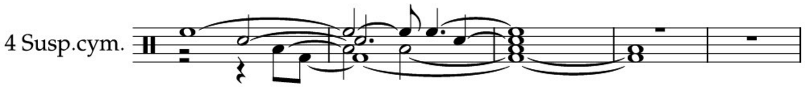
Damping

When each note is notated for its full duration damping indications are not required. (The player will damp at the indicated rest.) If deemed necessary, an instruction at the front of the score and part makes this unambiguous: 'all instruments are written with their full resonating length and should be damped at the indicated rest'.

When several instruments played in a single passage are to be damped at different times, it may become visually too complex to notate the full length of all durations. Instead, write the passage as a single-rhythm part and place an open tie or *l.v.* indication after each instrumental entry or at the end of the passage. A rest is required only to complete the value of a bar (a rest for each instrument would merely add unwanted extra information):

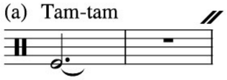


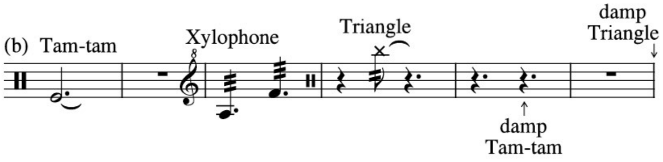
rather than



Damping instructions may be given in words (as above), or with a sign // (or, less commonly, ɸ – see Carter extract, p. 517) placed at the precise point where the instrument is to be damped. Divide rests for this if necessary (see example (b) below, bar 5).

To indicate where to damp once the player has moved to another instrument, give a verbal instruction above the stave (below the stave if more visually helpful – e.g. when damping lower notes on the stave). This is simpler to read than writing the full length of long-sustaining notes. State which instrument is to be damped when others have been played in the interim:



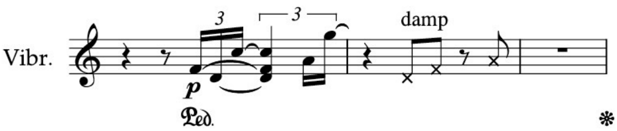


Finger (or hand) damping

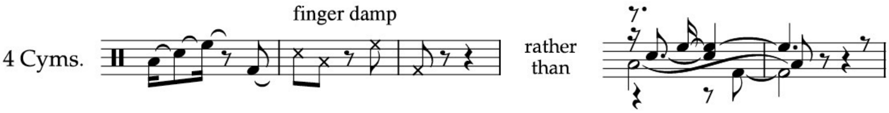
NOTATED IN RHYTHM

The notation of finger damping should be reserved for very special effects. Usually it is left to the individual player to clarify the texture. To make the musical intention clear, where possible add phrase marks rather than use extra finger-damping notation (which can add a significant layer of complexity).

When each note is to be damped individually at a specific point in the bar, place crossed noteheads at the relevant pitches or on the relevant line or space:



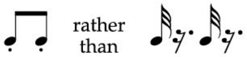
Although this notation is often reserved for tuned percussion, it may also be used for the consecutive damping of several instruments. Such notation is efficient as it shows exactly where the player must damp each instrument – when all notes take full duration, the notation may become too complicated:



An instruction must clarify that the notation shows finger damping, since, for example, a cymbal could be struck while being simultaneously damped (see *Cymbals*, p. 297).

IMMEDIATE DAMPING

The written instruction *secco* (Italian, 'dry') or *étouffez* (French, 'damp') indicates immediate damping. Additionally, staccato dots may be added. In order to make the rhythms simplest to read it is better to use staccato dots rather than very short durations:



The role of the staccato dot may be ambiguous without a damping instruction, as it can also be used interpretatively (see *Role of articulation*, p. 289).

Stick damping

Stick damping ('dead sticking') is a technique in which the player stops a stick from rebounding by holding it against the instrument's surface. It is useful to differentiate noteheads of such strokes. The notation used by Kagel in *Match* is economical.

Notes may take staccato dots, but whatever notation is used must be clarified with a verbal instruction.

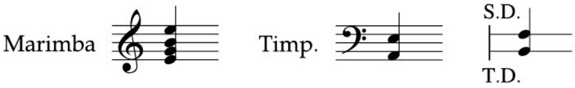
Sticks, beaters and mallets

Unless otherwise indicated, the player will choose the most appropriate sticks for the musical result demanded by the score. Therefore indicate sticks only for a special effect. To return to normal sticks use *norm.*, *nat.* or *ord.*, or *ordinary sticks*, etc.

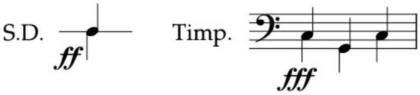
Place stick indications above the stave, after instrument labels (see *Labelling instrument and stick changes*, p. 275; also, *Sample percussion score*, p. 272).

STICK ALLOCATION BETWEEN HANDS

Indicating stick allocation is usually neither necessary nor desirable: players will work out their preferred distribution between the hands. Therefore give all notes played together a single stem:



Two stems should be used to indicate that two sticks are used together on one instrument (this special effect aggressively dulls the sound):



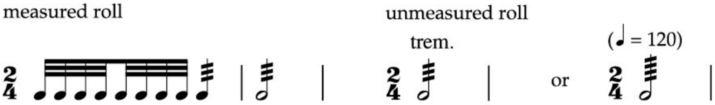
Tremolos, rolls and trills

(For notation of *Measured tremolos* and *Unmeasured tremolos*, see p. 224.)

Single-note rolls

The concept of the unmeasured tremolo is that it is without perceptible rhythmic stress. Percussionists are highly skilled at executing very fast measured rolls: an unmeasured roll may actually be played more slowly. The measured tremolo is more pronounced and very rhythmic in effect, quite different from the unmeasured roll. For this reason the notation should be differentiated.

The measured roll should initially be written out in full. The unmeasured roll is indicated *trem.* (alternatively, add a further tremolo stroke, as long as this ensures that the roll cannot be measured in the given speed):

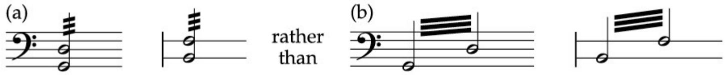


Rolls are often written as trills. (In drum parts a trill always means a roll on a single drum.) This notation has the advantage of showing unambiguously that a roll is unmeasured. However, in general, percussionists prefer the trill sign to be reserved for the true two-note trills of tuned percussion.

Two-note rolls

It is recommended that the two-note roll between two instruments, including timpani, is written as a chord (a). This is the same principle as the notation of tuned percussion tremolos (see *Chord tremolos*, p. 278).

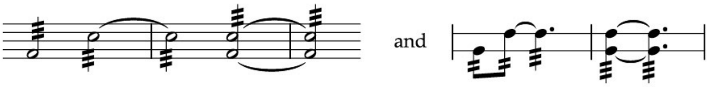
Historically, the two-note roll was written as a two-note tremolo, but this may be interpreted as a more deliberately rhythmic, measured tremolo between the different pitches (b):



If necessary, to clarify the notation, add a footnote at the first appearance such as 'tremolo chords signify two-note unmeasured rolls'.

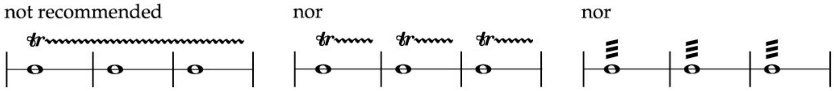
Unbroken rolls

All the note-values of an unbroken roll take solid ties:

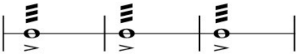


(Dotted ties may be used but are visually more difficult to read; see *Unmeasured tremolos: Ties*, p. 225.)

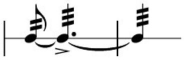
The older-style notation of omitting ties for the unbroken roll should not be used:



If the roll requires slight separation between bars, mark articulation for the respective notes:

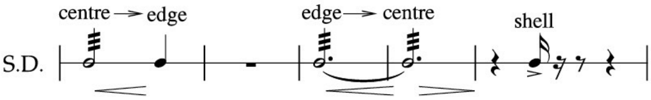


A roll punctuated with accents will remain unbroken where ties are used:

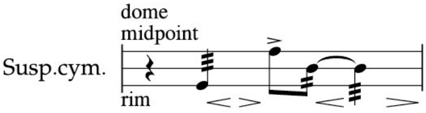


Beating spots (striking points)

Different locations on an instrument's surface can be indicated in words: e.g. *at the edge*, *on the rim*, *dome*, *centre*, etc. Arrows indicate the transition between one beating spot and another:



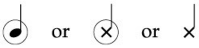
Alternatively, for instruments of indefinite pitch, noteheads may be placed on different lines or spaces to represent different locations:



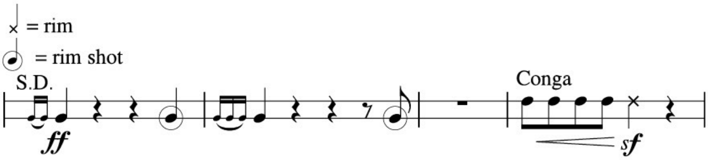
If multiple lines are already required (i.e. for a multiple-instrument part), the example above will be impractical. In such a case use only a single line, add verbal instructions for the different locations (as in the first example above) and notate 'playing on the rim' with a crossed notehead. Add a verbal definition for the crossed notehead at its first appearance, or at the outset (see lower example below).

RIM SHOTS

Rim shots are always marked out with differentiated noteheads (the crossed notehead should not be used for a rimshot if it is already being used to indicate playing on the rim):

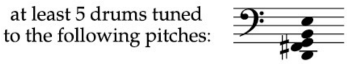


The different noteheads are easier to read at speed than text instructions:

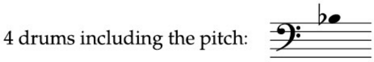


Timpani

Individual players will have different sizes of drums. Therefore it is not always possible to be absolutely specific as to how many drums are required, as individual instruments may have slightly different ranges. However, when a sequence will require a minimum number of drums, a description is useful at the outset of the score and part. This might read:



It is useful to state when a high drum (the piccolo timpano) is needed:

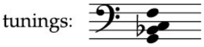


KEY SIGNATURES

Most timpani music does not include key signatures. The player is used to seeing accidentals before the respective notes.

TUNING INDICATIONS

Initial tunings may be indicated at the start of a piece:

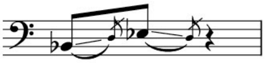


Indication of re-tunings should be left to the player.

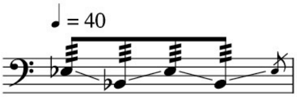
GLISSANDOS

Two distinct glissando techniques are differentiated by their notation.

Glissando after the note is struck: the slur indicates that the final note of the glissando is not re-articulated:



Rolled glissando: the duration of each glissando is notated (and articulated) with tremolo strokes:

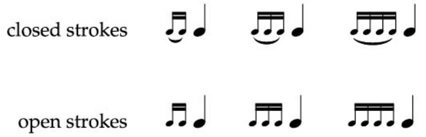


Drum notation

GRACE-NOTE SLURS FOR DRUM STROKES

Slurs indicate that notes are played by the same hand, as rebounding strokes before the beat. Such bounced notes are called ‘closed strokes’: the notes are crushed in immediately before the beat.

Grace-note groups without slurs are played with alternate sticks, hand to hand, giving more defined articulation before the beat. These are called ‘open strokes’:



Do not use a slur between a single grace note and a following measured note, because the strokes are played with different hands.

MUFFLING OR MUTING

Cloth or felt is placed on the drumhead to dampen reverberations, in order to deaden the sound. This is indicated by *muffled* or *coperto* (plural *coperti*; Italian, ‘covered’) and cancelled by *unmuffled* or *scoperto* (plural *scoperti*).

SNARE (SIDE) DRUM INDICATIONS

The instruction for snare drum is *with snares* (Italian: *con corde*); this is cancelled by *without snares* (Italian: *senza corde*). When snares are used for an entire piece, this may be indicated at the outset as *with snares throughout* – or *con corde sempre*. (This is not usually necessary, as *with snares* is assumed to be the norm.)

FINGER PLAYING

All drums can be played with the fingers or flat of hand. This is indicated with verbal instructions: *with fingers*, *with palm*, etc.

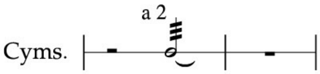
Cymbals

LABELLING

When suspended and clashed cymbals occur in the same piece, it must be clear which is which. Clashed cymbals are labelled *cym. (pair)* or *cyms. a 2*, suspended cymbal abbreviated to *susp. cym.*

ROLLS

Tremolos are usually played on the suspended cymbal. The rarely used two-plate roll is indicated by *a 2* and uses the same notation:



HI-HAT NOTATION

Hi-hat (or high-hat) cymbals are mounted on a stand with a footpedal and operate in closed (pedal depressed) and open (pedal up) positions. The notation is:

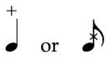
○ = open (ringing tone)
+ = damped or choked
∅ = half open

Note that in rock music the '+' sign is commonly used to mean playing slightly open hi-hats, so that the cymbals sizzle together. (See also *Standard drumkit*, p. 281; also, *Sample percussion score*, p. 272.)

Jazz and rock music uses crossed noteheads for cymbals (see *Crossed noteheads*, p. 282).

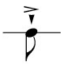
STRIKE WHILE DAMPING

A plus sign may also indicate that any suspended cymbal (i.e. not just the hi-hat) is damped with one hand while being struck with a stick held in the other. A verbal instruction is required at first appearance, such as *strike while damping*:

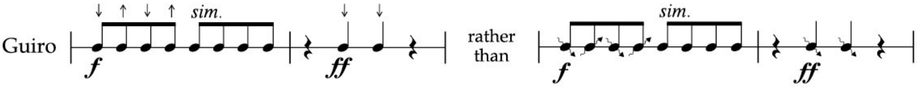


Symbols to express special techniques

The player needs to know the rhythmic placing and duration of a sound, but should not be expected to be conversant with symbols that attempt to illustrate how to play an instrument. This applies equally whether the notation is for a conventional percussion stroke or an action that requires an individual instruction such as crumpling paper into a ball or breaking a bottle against a tin plate. Ligeti uses conventional rhythmic notation for these actions in *Nouvelles Aventures*:

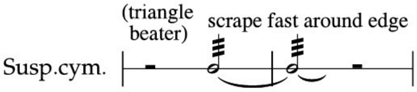


Avoid elaborate symbols, as they clutter the stave, and it takes time to work out what they mean. Where a symbol will save a lengthy instruction, use the simplest possible notation:


sim.
Guiro
f
ff
rather than
sim.
f
ff

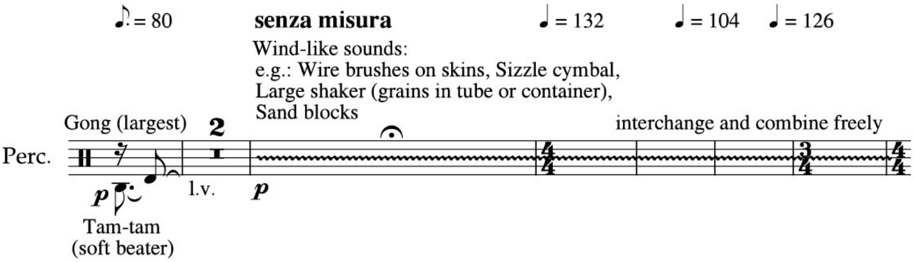
(The arrows indicate to and fro sweeps – as opposed to strokes in one direction only.)

A tremolo may indicate the duration of a note to be sustained in an unconventional way (and a verbal instruction qualify the technique). Indicate the type of stroke to be used (*scrape*, *brush*, *rub*, etc.) so that the tremolo beams are not interpreted as repeated strokes:


(triangle beater)
scrape fast around edge
Susp.cym.

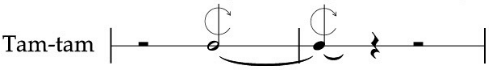
If more appropriate (e.g. to indicate an amalgam of sounds), a trill line placed mid-system may indicate continuing sound:

Harvey: *Scena*


♪. = 80
senza misura
♩ = 132
♩ = 104
♩ = 126
Wind-like sounds:
e.g.: Wire brushes on skins, Sizzle cymbal,
Large shaker (grains in tube or container),
Sand blocks
Gong (largest)
2
interchange and combine freely
Perc.
p
l.v.
p
Tam-tam
(soft beater)

However, it is often best to use conventional note-values, so as to clarify duration at a glance (see following example).

A different symbol may be used where tremolo strokes might be misleading, as long as the symbol has clear explanation:


rub slowly around edge with wet finger
Tam-tam

(See also *Symbols to replace repeated instructions*, p. 494.)

Bowed notes

These should be indicated with a written instruction beside the relevant notes; do not give bow direction (⊓ ∨), as this makes no difference to the sound (see vibraphone entry in example under *Labelling instrument and stick changes*, p. 275).

Tambourine

Specify a tambourine technique only when there is a requirement to play a passage in an unconventional way. Indicate the instruction verbally, over the note: *shaken*, *thumb roll*, *palm*, etc.

(For layout of parts, see *Percussion*, p. 586; for orchestral score layout, see *Stave allocation for percussion*, p. 533.)

For further reading, see Reginald Smith Brindle, *Contemporary Percussion* (Oxford University Press, 2nd edn, 1991).

11

Keyboard

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GENERAL TOPICS

The system and clefs

Music for keyboard is written on two or more staves joined by a curly brace. The two staves together are called a braced part or system.

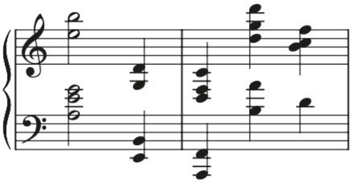
Although the upper stave usually takes the treble clef and the lower stave the bass clef, each stave can appear in either clef as required (see *Changing clef*, p. 7).

(See also *Spacing a braced part*, p. 488.)

Distributing notes between the hands

Principles

The overriding principle of keyboard notation is to indicate how a player should distribute the notes between the hands. The positioning of notes on one or other of the two staves shows this. Notes should not merely be placed on the treble or the bass stave according to their pitch if this does not represent a feasible hand distribution:



and
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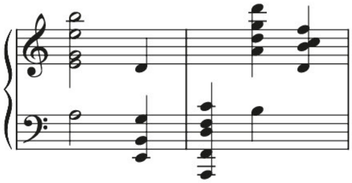
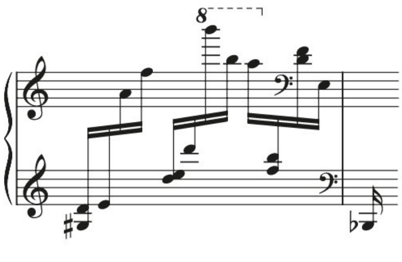
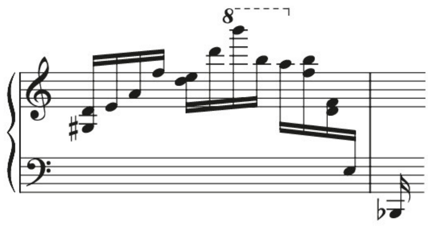


It is important to show how the hands of the player move, even if this appears less straightforward for the score-reader. A practical solution to hand distribution will almost always be helpful, especially for immediate reading, even if the player subsequently changes it:

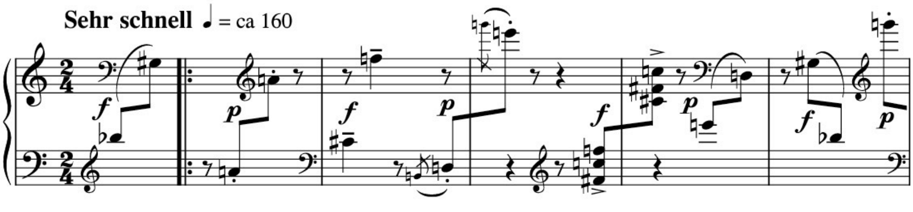


rather
than



Sometimes, precise choreography of the hands becomes so complicated that it obscures the musical shape. This makes the music more difficult to learn:

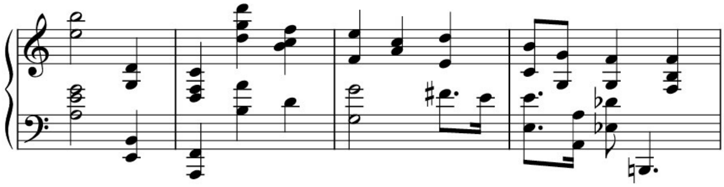
Webern: Variations for piano



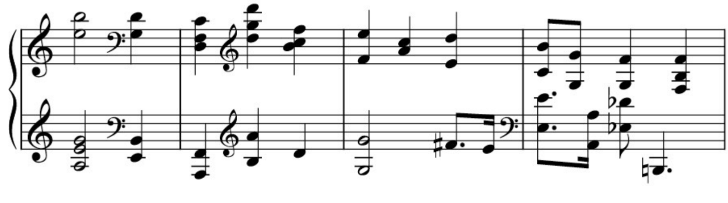
There are a number of acceptable ways of indicating the distribution of notes between hands. These are shown below. Aim to keep to one suitable layout for a piece wherever possible.

Allocating one stave per hand

The most usual keyboard layout is to allocate right-hand pitches to the upper stave, and left-hand pitches to the lower stave. Allocate separate stems for each hand. (It is not standard practice to use a common stem to indicate both hands playing at the same time – but see *Both hands playing simultaneously*, p. 317.) Both hands may use ledger lines between the staves:



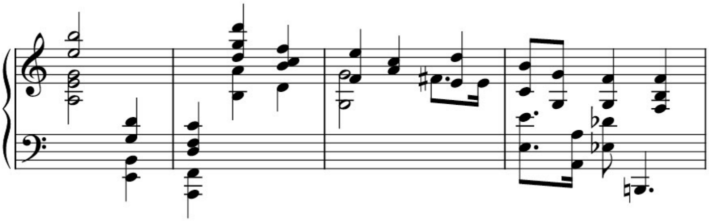
If necessary, clef changes may replace ledger lines to make notes easier to read. (However, it is better to retain the occasional ledger line so as to keep clef changes to a minimum.) Clef changes can obscure pitch relationships, but this is frequently inevitable in keyboard music:



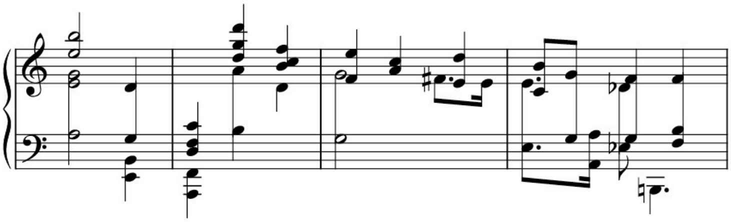
Hands moving to the opposite stave

STEM DIRECTION INDICATING HAND ALLOCATION

If each hand requires only single stems, it is possible to show the contour of pitches by placing notes on either the treble or the bass clef stave according to their range. (This avoids the clef changes of the notation above.) When both hands play on the same stave, stem direction indicates hand allocation: the right hand takes up-stems; the left hand takes down-stems. Do not allocate rests to the empty stave, since this would imply that a hand is resting:



To avoid ledger lines in the middle of the system, a stem may extend from one stave to the other to take advantage of the other clef. This notation can look confusing for more than the occasional chord:



BRACKET OR VERBAL INSTRUCTION INDICATING HAND ALLOCATION

In contrapuntal writing, it may be necessary to keep voices on separate staves to clarify part-writing, rather than to transfer every note to the stave of the appointed hand. A verbal instruction may indicate that notes are to be taken with the other hand:

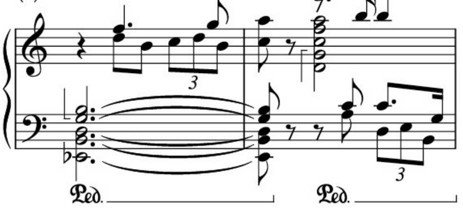
English	or	Italian
R.H. / r.h.		m.d. (mano destra)
L.H. / l.h.		m.s. (mano sinistra)

(See example (d) under *Voice-leading between staves*, p. 307.)

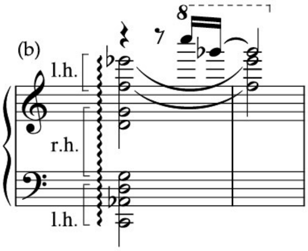
Alternatively, such notes may be shown with an incomplete bracket, extending vertically from the notehead upwards for right-hand notes, downwards for left-hand notes (see following example (a)).

An arpeggiated chord that is wider than the spread of both hands may use a square bracket to encompass the notes of each hand (b):

(a)



(b)

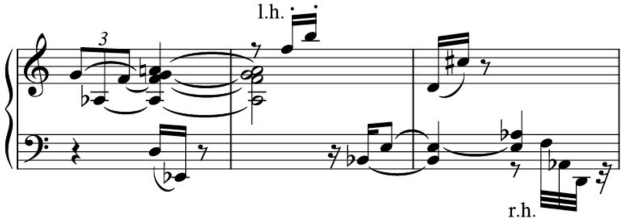


To show that hands should revert to the original arrangement, provide a further verbal instruction or bracket (see examples (c) and (d) opposite).

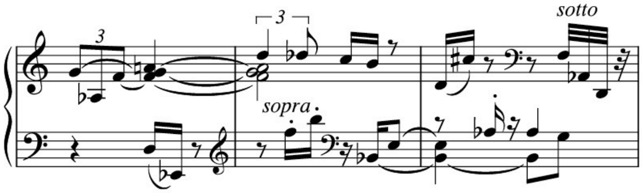
CROSSING HANDS

When one hand crosses the other, notes of the crossing hand may be written on the stave of the other hand. As long as there is one stem direction only on the stave to which the crossing hand is moving, notes may be taken over onto this stave. This clarifies the contour of the pitches, but at the expense of showing the hand distribution.

Reverse the stem direction of both hands away from each other on either stave for the relevant section: the right hand takes down-stems, the left hand up-stems. For clarity, label the crossing hand beside the first stem. Any rests for the crossing hand (e.g. the time to allow the hand to change register) are placed on the same stave as neighbouring notes that make up the beat or bar. Do not add rests to the vacated stave:



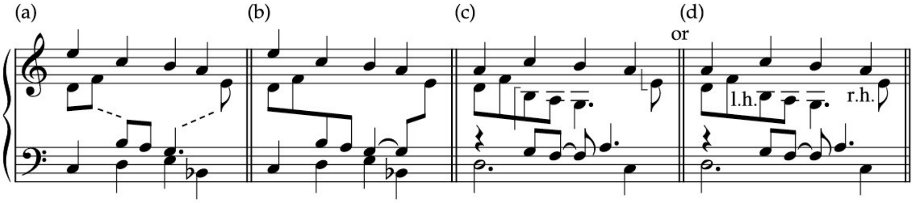
When it is more important to show hand distribution than pitch contour, the hand that crosses the other remains on its own stave. This layout is essential if there are already two stem directions on the stave. Indicate how the hands cross by adding *sopra* ('above') when the hand in question goes over the other, *sotto* ('below') when the hand goes under:



Voice-leading between staves

A middle part may move between staves according to which hand plays it. Its stems point into the centre of the system. A diagonal line may trace the progression between staves (see (a) below). A dotted line is most conspicuous: a solid line can look like a glissando, particularly if the line appears to connect two noteheads.

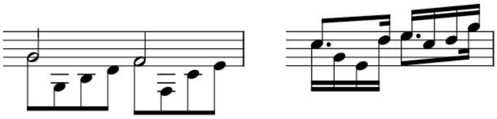
The clearest way to indicate the progression of a part between staves is to use double-stemmed beams where possible (b) (see also p. 315). If there is not room to move the middle part to the other stave (this already being occupied by double stems), indicate hand allocation with a vertical bracket (c) or verbal instruction (d):



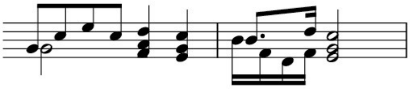
Unisons

Sharing noteheads in unison

It is an accepted keyboard (and harp) convention that notes of unequal duration may share a notehead in the context of repeated patterns. The shared notehead saves space, especially when one or both parts has dotted notes. A minim can double as a beamed note. A dotted note and a note without a dot may share a dotted notehead:



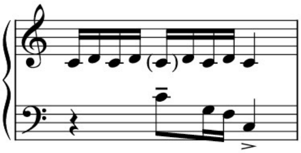
When there is a single instance of a unison, it is advisable to use two noteheads, so that part-writing is absolutely clear:



(See also *Additional parts to point the melodic line*, p. 311; *Double-stemmed writing*: *Unisons*, p. 52; and *Dotted unisons*, p. 58.)

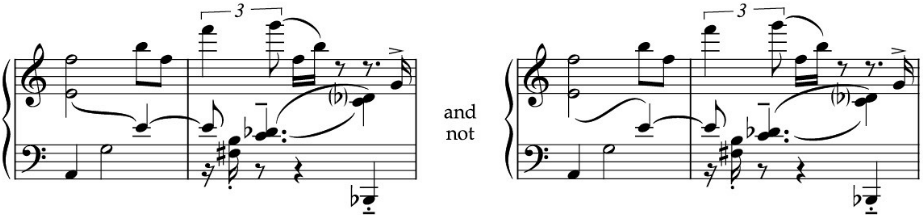
The same written note for both hands

The player will choose the appropriate hand to play a note on technical grounds – it may be the hand with the longer duration, or with the more prominent part (if both notes are of equal length). Bracket the other note:



Ties between staves

When one hand takes over a tied note from the other stave, the tie crosses from one stave to the other. The tie must connect the noteheads; a tie ending further from the note will look like a slur. When a pitch with an accidental is tied over to the other stave, it is useful to add the accidental in brackets to the second chord, as a reminder (bar 2):



Fingering

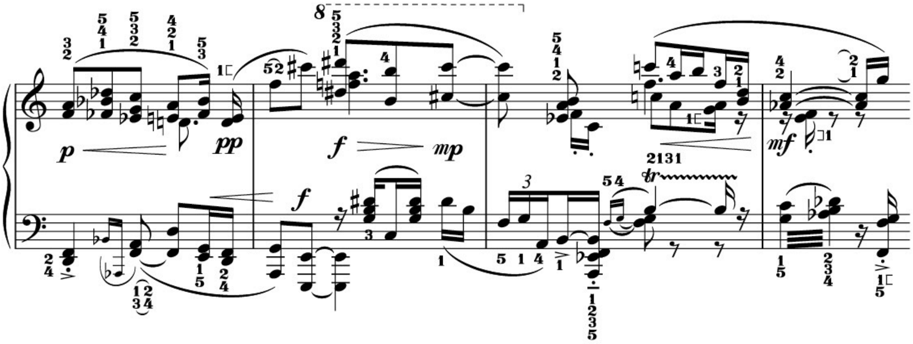
Fingering may be provided in educational music and otherwise to illustrate difficult technical manoeuvres. Many editions contain no fingering at all.

Arabic numerals in a small bold roman font distinguish fingering from tuplet numerals (which should always appear in italic).

The general principle is to place fingering as close as possible to the relevant notes: directly above or below, in front of or even after them. Numerals should be clear of the stave unless absolutely necessary. It is usual for right-hand fingering to go above the treble stave, left-hand fingering below the bass stave, keeping the middle of the system clear for dynamics. However, fingering for inner parts is usually best placed at the stem ends so as to be close to these notes.

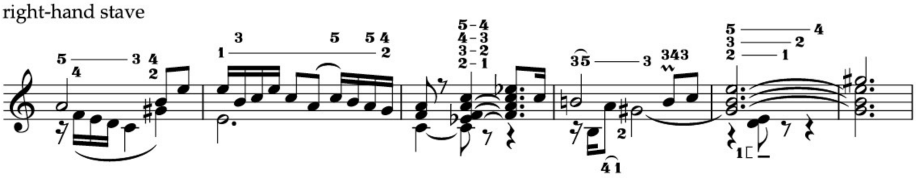
Stack numerals for a chord vertically, outside the stave if possible.

Consecutive horizontal numerals indicate alternating fingers for trills (see bar 3). A vertical bracket indicates that the same finger or, more usually, the thumb takes more than one note:



FINGER SUBSTITUTION

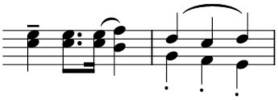
Finger substitution is an integral part of legato playing in organ and electronic keyboard music. It is indicated by placing a small slur above or below the two numerals (as in bar 4, below). Multiple fingering changes are sometimes marked with dashes rather than small slurs. In the following example, bars 1–2 indicate all fingering above the stave, to keep the middle of the system clear; bars 4–5 might represent a different context in which fingering for inner parts is clearer beside individual parts. A horizontal line indicates the duration for which an individual finger is held down:



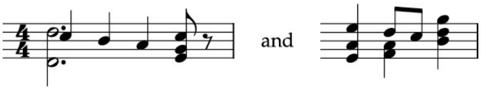
Part-writing

Free part-writing

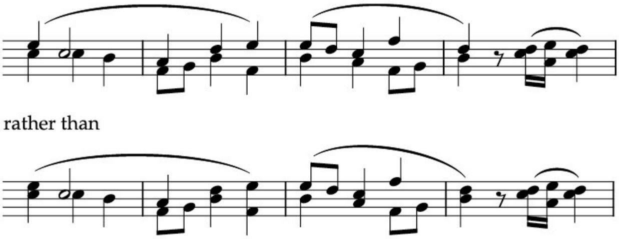
Keyboard writing can move from a single line to any number of parts as required from beat to beat. Where it is not significant for each note of a chord to be considered as an individual part, combine parts onto single stems; this clears the music of duplicate stems, rests and articulation. Thus parts in rhythmic unison share stems. Any difference between the parts in terms of articulation or dynamic requires separate stems:



Except when individual parts are to be indicated throughout by separate stems, it is acceptable to revert to single stemming at the earliest opportunity:

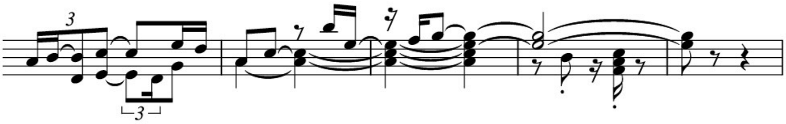


For clarity, a contrapuntal phrase should preserve individual stems. If the voicing reverts to a single line (see last bar), change between single- and double-stemming with a new phrase rather than at the barline, unless the two coincide:



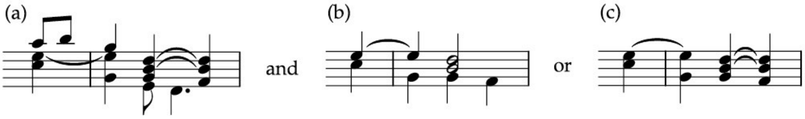
ADDITIONAL PARTS

Separate stems are required only when an additional part has an individual rhythm. It is acceptable to combine additional parts onto a single stem so that a second stem direction can then be used for an entry of independent rhythm. Reverse ties away from the entry of another part:



CHORDS WITH SOME NOTES TIED

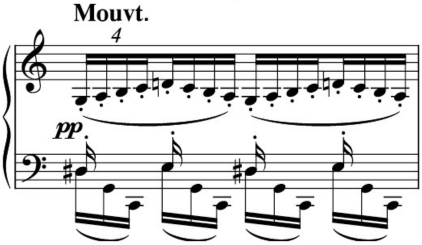
It is acceptable to use a single stem for chords in which some but not all notes are tied. This is useful if the stave contains a second part (a). It is usually clearer to separate the stems if there is no other part on the stave (b). However, the single stems may be retained to preserve stylistic homogeneity in chordal writing (c):



ADDITIONAL PARTS TO POINT THE MELODIC LINE

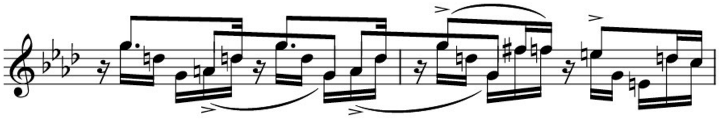
It is an accepted convention to visually point a melodic line with separate stems but without additional rests:

Debussy: *Études* Book 1, No.1



Separate stems can also function to point counter-melodies. Nineteenth-century composers, in particular, commonly added beams as well, to show the progression of simultaneous parts. In the following example, beams are given convenient rather than strictly correct note-values. (To separate some parts onto a second stave, in order to give them correct note-values, would not be a helpful alternative as all notes are doubled: it is more difficult to take in two staves for one hand at once.) As long as the meaning is clear, such notation is acceptable, provided all figuration has correct durations attached (which the semiquavers in this example show):

Schumann: *Konzert ohne Orchester*

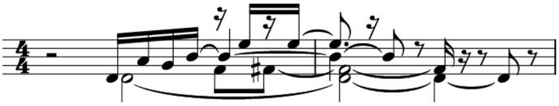


USE OF RESTS

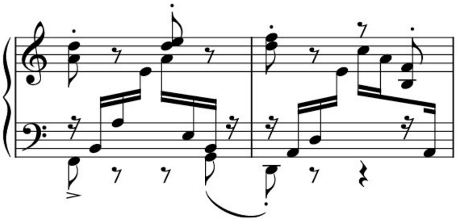
To keep the stave as uncluttered as possible, use rests sparingly for additional parts: when both hands are already playing, the pianist does not want to read extra rests, except to clarify the placing of additional parts that have independent rhythm.

When there are two rhythmically independent parts on a stave, rests should make up the value of the bar for each part (see example *Whole-bar rests for extended part-writing*, below).

When further parts enter and there is little room in which to place rests, it is necessary to make up the duration of a beat only for the extra parts:



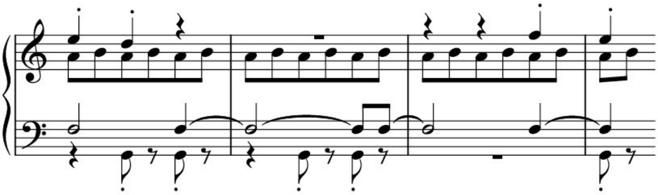
Parts on one stave share a rest where possible (as at the beginning and end of the above example). If a double-stemmed group is present, additional parts require their own rests:



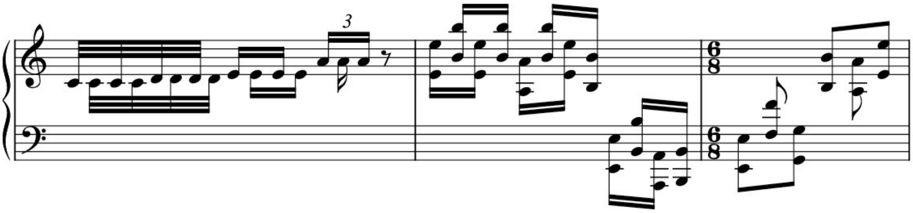
(See also *Single-line passage-work*, p. 317.)

There is no need to use whole-bar rests for individual parts except where there is extended part-writing:

Whole-bar rests for extended part-writing



If both hands play in the same range and therefore can be written on the same stave, figuration treated as a single-line part may dispense with rests:



(If notes for each hand are separated onto individual staves, rhythms become unclear and double-stemmed notation should be used instead – see *Double-stemmed beams*, p. 315.)

This same convention is occasionally useful for a single-stave part (see *Alternating the same pitch on two or more strings*, p. 395).

Strict counterpoint

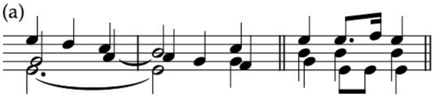
In strict contrapuntal writing, each part takes separate stems and rests throughout. This includes whole-bar rests for each part. Thus counterpoint in four parts should have rests for three parts if there is only one line present. This clarifies the number of parts and the position of the voice present in relation to the others: usually two voices are allocated to each stave, rests placed above or below the middle line to reflect the higher or lower voice (see example *Whole-bar rests for extended part-writing*, opposite).

THREE PARTS ON A STAVE

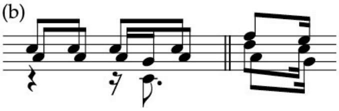
Space considerations may determine the stem direction of a middle part, but ideally it should retain one direction within a phrase.

When there are two stems in the same direction, displace the lower part to the right. The noteheads should overlap vertically wherever possible (a). It is acceptable to place a beam through the stem of another part if necessary (b):

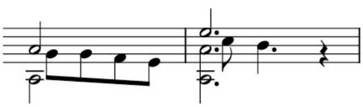
(a)

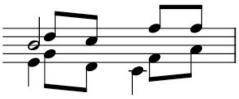


(b)

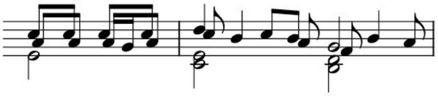


Overriding the above rule, a part with a tail or beam moves to the right so that parts do not collide:





When noteheads cannot overlap, allow plenty of room between beats so that it is clear which notes belong to which beat; to close up the spaces between beats creates confusion:



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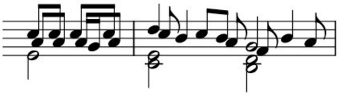
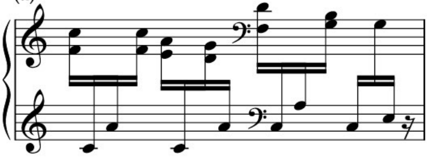


Common beam for both hands

This notation combines what would otherwise be two rhythms on separate staves into one rhythm, thus minimizing the notation. Where material may be considered as a single part, any group of beamed notes that is divided between the staves may be amalgamated in this way.

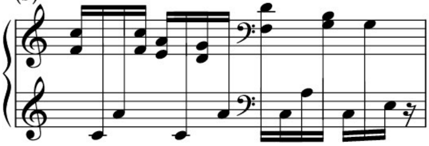
Join the stems of a beat to a common beam, either between the staves (a), or above or below the system (b). This is clearer to read than allocating each hand separate stems on the same stave (c), and much simpler than separate rhythms (d):

(a)



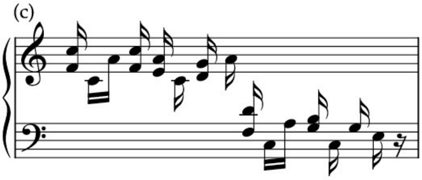
or

(b)



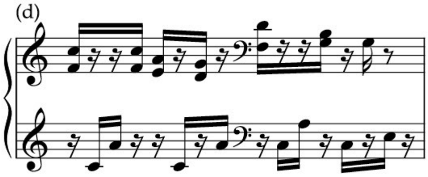
but not

(c)



nor

(d)



USE OF RESTS

A major advantage of a common beam is that a rest is needed only as part of the beamed group – i.e. not as (d) above.

(See also *Single-line passage-work*, p. 317.)

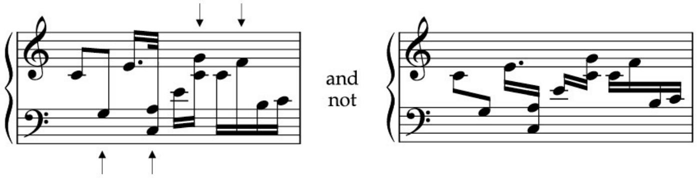
Beams above and below whole group

The note furthest from the middle of the system determines the stem direction (marked ↑ ↓ in the following example).

A potential problem with this notation is that stems extended across two staves may be excessively long. It is best to reserve this notation for conditions in which it is unsuitable to have a beam centred between the staves (e.g. when there are copious dynamic changes).

PITCHES CLOSE TO THE CENTRE OF THE SYSTEM

Place stems in one direction when pitches are close to the middle of the system and the staves cannot be moved further apart due to space constraint:



To use a double-stemmed beam, the staves must be far enough apart to give adequate length (at least 2½ stave-spaces) to all stems.

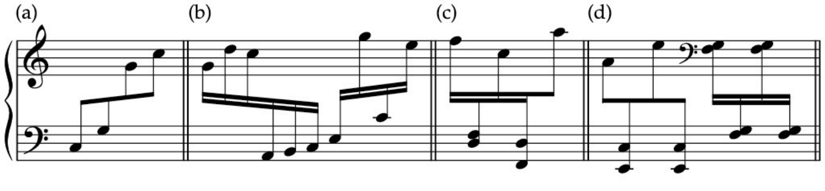
Double-stemmed beams

Stems for groups of beamed notes that span both staves point towards the centre of the system and are joined by a common beam.

BEAM POSITION

Position a beam so that the shortest stems in both directions are of equal length. For clarity, keep beams clear of the staves where possible. Horizontal beams, in particular, are hard to read against stave lines and should be placed in the space between the staves, even if this results in unequal stem lengths (see first example, (b), p. 325).

For beam direction, the most important consideration is to help the eye follow the contour of the pitches. Slope the beam if the intervals of a group go in one direction (a); otherwise, reflect the interval of the outside notes (b). A beam should remain horizontal where a slope in the direction of the outside pitches contradicts the direction of the majority of notes (c), and where there is no overall change in contour (d):



These guidelines follow the principles of beam direction (see *Direction of beam angle*, p. 22). If in doubt use a horizontal beam, as this is the most conducive angle for enabling the eye to travel forward with the passage-work.

(For double-stemmed grace-note groups, see *Placing diagonal lines on grace-note groups*, p. 126.)

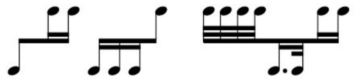
PLACING ADDITIONAL BEAMS

The position of additional beams depends on the combination of stem directions. Wherever possible, place each beam so as to avoid corners of additional beams jutting out from the main beam.

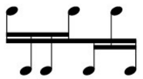
Additional beams may be placed on different sides of the same principal beam.

Place additional beams on the stem side when all the stems of the same subdivision are in the same direction (a), and when the outer stems of the same subdivision are in the same direction (b), and when the beam is fractional (c):

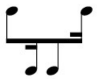
(a)



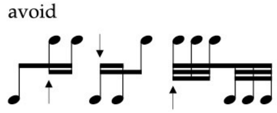
(b)



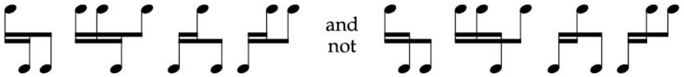
(c)



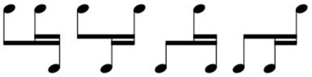
This avoids beam corners (marked ↑ ↓):



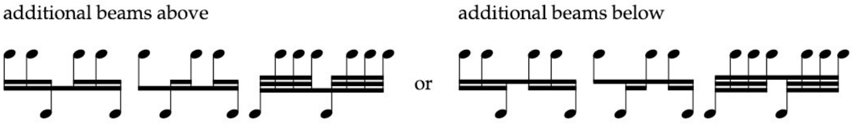
When the outer notes of a subdivision have opposite stem direction, place an additional beam so as not to create any unnecessary beam corners. If the subdivision is at the beginning of the main beam, place an additional beam on the opposite side to the first note:



If the subdivided group occurs at the end of main beam, place an additional beam on the side of the first note:



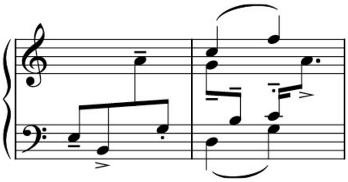
When groups combine both of the above, it is best to keep all additional beams on the same side of the main beam (it is distracting if the secondary beam moves position – it can look like another additional beam):



(For notation of double-stemmed beaming with two-note tremolos, see *Between two staves*, p. 227.)

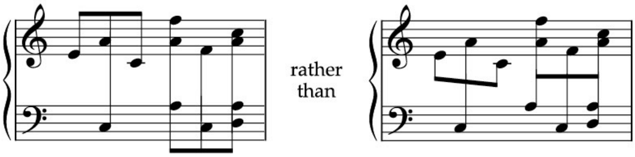
PLACING ARTICULATION

Place articulation next to the relevant noteheads. When a double-stemmed group is an inner part, each marking goes next to the beam, on the opposite side to the stem (bar 2):



Both hands playing simultaneously

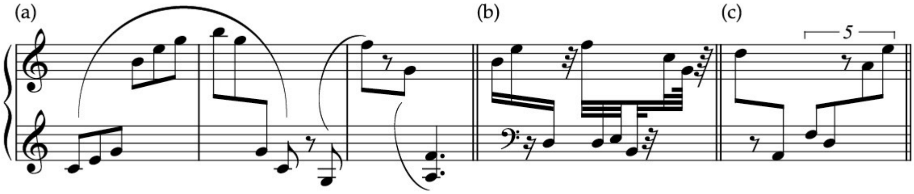
When both hands occasionally play simultaneously in a passage of otherwise single-part writing, it is acceptable to join notes for both hands with a single stem. It is better not to have notes attached to different sides of the stem; this is visually disconcerting because the noteheads do not align:



Single-line passage-work

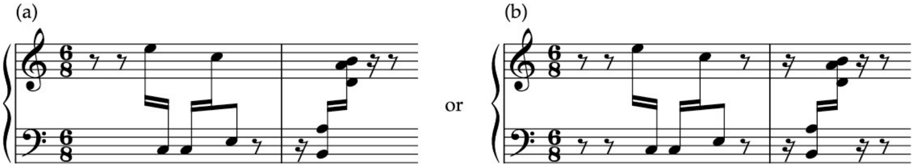
When a single line of passage-work is to be divided between the hands, allocate notes on the system as appropriate for the hand distribution. As long as it is clear where the beats fall, it is acceptable to use rests only as part of the single line, placing them on the stave of the surrounding notes (see following example (a), p. 318).

Where there is a double-stemmed group, place the rest according to its position within the beat. At the beginning and end of a subdivision of a beat, place the rest on the same stave as the remainder of the subdivision, in order to clarify which beat the rest refers to (b); when the rest comes in the middle of a beat, place it on the stave of the note it precedes (c):

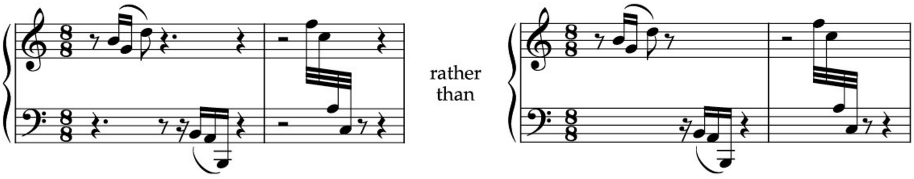


(See also examples under *Slurs across two staves*, p. 321.)

Rests that make up the beginning and end of a beat need appear on one stave only, beside the remainder of the beat (a). However, for clarity rests may be added to both staves (b):

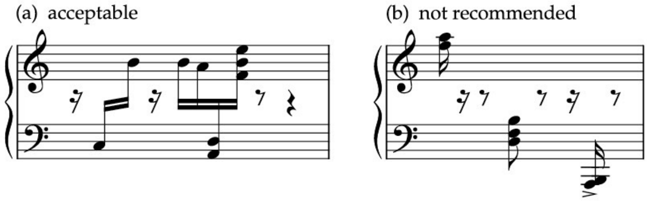


Whole-beat rests are best duplicated on both staves to clarify the position of other beats:

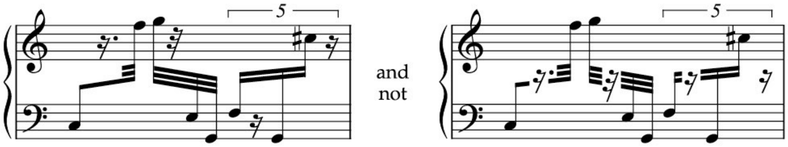


RESTS CENTRED MID-SYSTEM

When a rest is relevant to both staves, it is acceptable to centre it in the middle of the system. This notation works effectively with double-stemmed beams (a). In all other cases, it can be disconcerting for the eye to need to jump to the centre of the system to take in centred rests (b):



Rests that occur in the course of a double-stemmed beam are best placed on the stave – either above or below the beam – since those that cut through a beam obscure the rhythm:



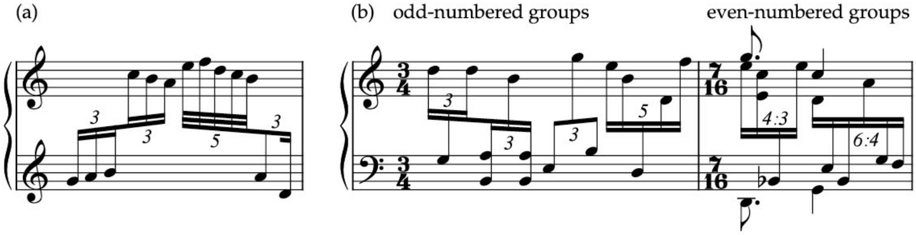
Centred rests should not be used where the music requires many dynamics or technical instructions in the middle of the system, as this space will become cluttered.

Placing tuplet indications

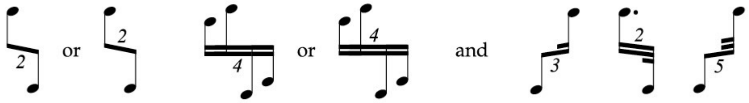
With double-stemmed beams

When an individual tuplet has stems in one direction, centre the tuplet numeral opposite the stems (a). When the tuplet has mixed stem direction, numerals are usually best placed outside the group so as to be most conspicuous (see first two examples, p. 320). However, if the numeral is sufficiently clear beside the beam, place the numeral on the opposite side to the middle stem or stems (b).

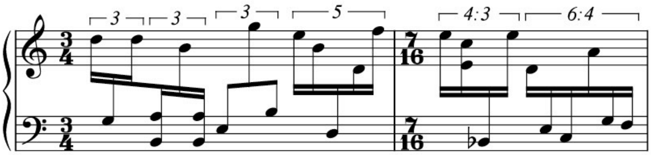
Numerals will have to be placed next to a beam when a double-stemmed group is an inner part ((b), bar 2):



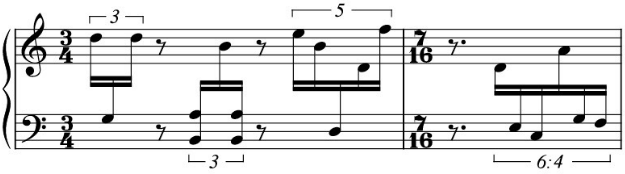
Where the outer stems of an even-numbered group are in opposite directions, the numeral can go on either side of the beam. If there is a fractional beam, place the numeral on the opposite side:



To be most conspicuous, place numerals outside the stave and enclose them in brackets. Consecutive tuplet indications are easiest to read when all are placed above the stave:



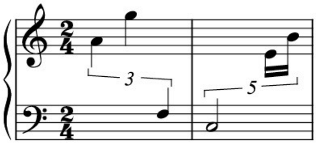
Place the occasional tuplet indication closest to the outside notes of the group, or, if more suitable, closest to the majority of notes, as in bar 2:



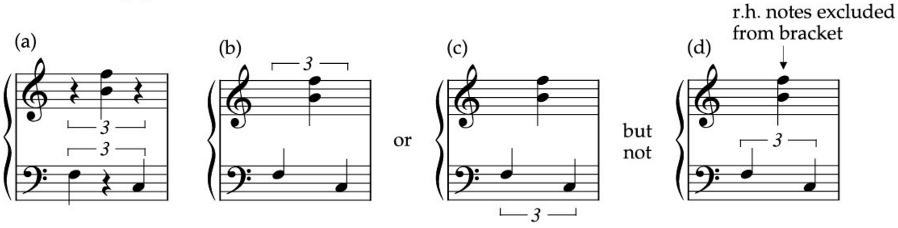
Tuplets without beams spanning both staves

Where single-line passage-work spans the two staves, a tuplet indication should be visibly relevant to both staves. To clarify the single line, stems of tuplet notes should point into the middle of the system (as if they were beamed).

Where the outer notes are on different staves, the bracket should be centred with its ends pointing towards each outer note:



Where the outer notes are on the same stave, it is usually clearest to add rests for each hand, together with separate tuplet indications (a). If the notation is clear without rests, the bracket should go above or below the whole group ((b) or (c)), but it should not appear to exclude notes on one of the staves (d):



(See also *The tuplet numeral*, p. 193, and *The tuplet bracket*, p. 194.)

Placing slurs

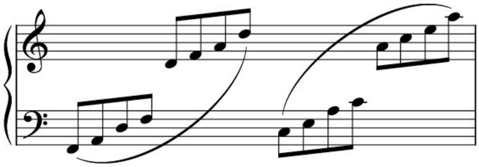
In keyboard layout, it is usual to allocate slurs to both staves, even when both hands have the same phrasing. Slurs for the lower stave may be placed below the stave, so as to leave the middle of the system clear for dynamic markings.

(For general placing of slurs, see *Positioning relative to the stave*, p. 110.)

Slurs across two staves

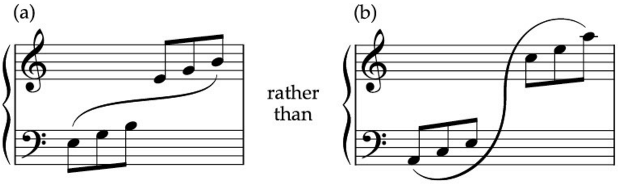
ALL STEMS IN ONE DIRECTION

Place the slur next to both first and last noteheads:

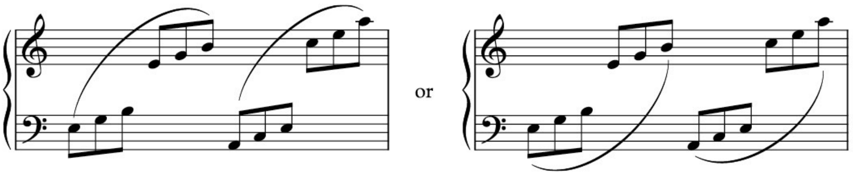


STEMS IN DIFFERENT DIRECTIONS

The slur may also be placed next to first and last noteheads (a), although it is better if it does not intersect the middle of the phrase (b):

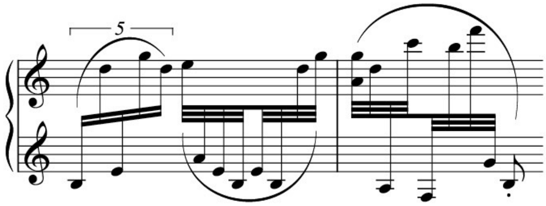


Often the slur will need to appear above or below the whole group (e.g. to avoid mid-system dynamics):

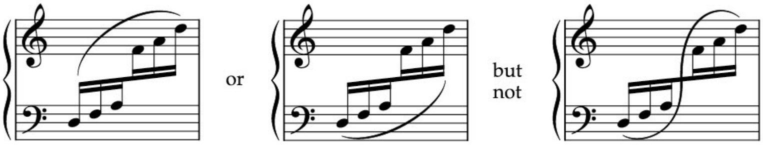


DOUBLE-STEMMED GROUPS

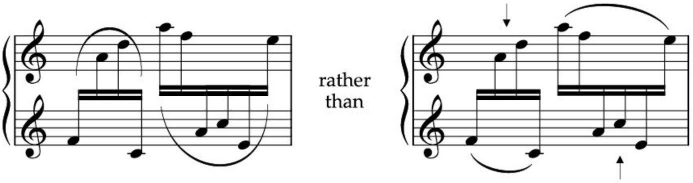
Place the slur on the side of the group that has the majority of notes:



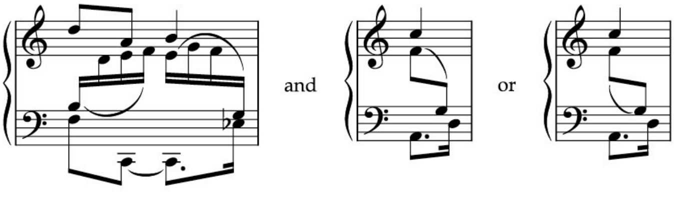
When there are equal numbers of notes on each stave, the slur can go either above or below the group. However, it should not intersect a beam, as this is confusing graphically:



All notes must appear to be included in a slur – notes a long way from the slur (marked ↑ ↓) fail to do this. A slur may be placed at the stem end of the group's outer notes in order to achieve the required inclusive appearance:



A slur for a double-stemmed inner voice is extremely awkward to place satisfactorily, and is best avoided. If essential, it should go from notehead to stem or vice versa, so that it does not cut through a beam:



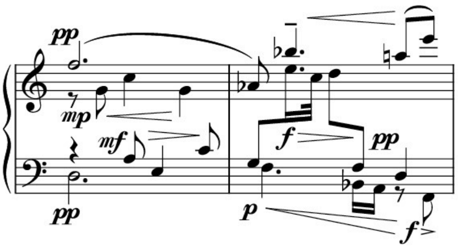
Placing dynamics

Dynamics that apply to both hands are centred between the staves.

Individual dynamics for each hand should, in the first instance, stay in the middle of the system, but move close to their associated stave (see first example under *Fingering*, p. 309; also, Schoenberg extract, p. 338). This allows the space either side of the system to be clear for slurs, tuplet brackets and octave signs.

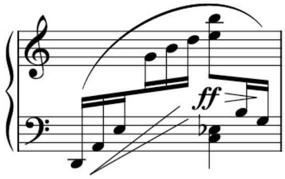
If positioning dynamics for both hands mid-system is insufficiently clear, place those for (usually only) one hand outside the system. The overriding consideration should be that dynamics are as close as possible to the part they affect. Thus the layout of the music will determine whether right-hand dynamics go above or left-hand dynamics go below the stave.

Dynamics for independent lines on the same stave should be placed at the stem end of each part. It is very important, especially in complex notation, that they are as close to their parts as possible, so as not to be overlooked:

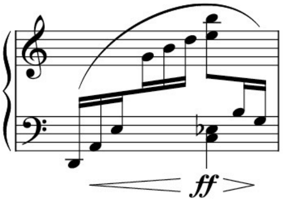


Placing hairpins with double-stemmed beams

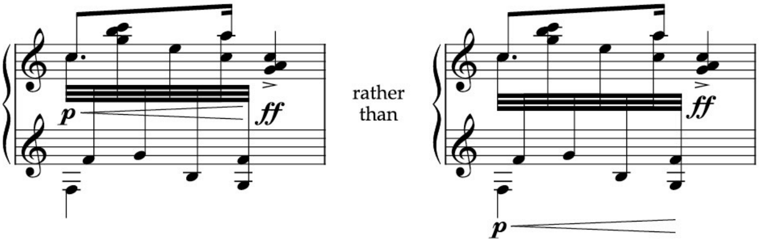
The stems and beams of double-stemmed groups may obstruct the placing of hairpins in the middle of the system. However, a hairpin placed outside the system may seem too far from the notes to which it refers. In such contexts, a hairpin may be angled through the stave as long as it can take sufficient slant to distinguish it from the stave-lines. At least one end of the hairpin should extend outside the stave, so as to be conspicuous:



rather than



As a last resort a hairpin may intersect stems. A hairpin should never intersect a beam. In the following example the hairpin needs to be placed mid-system to clarify that it applies to both hands:



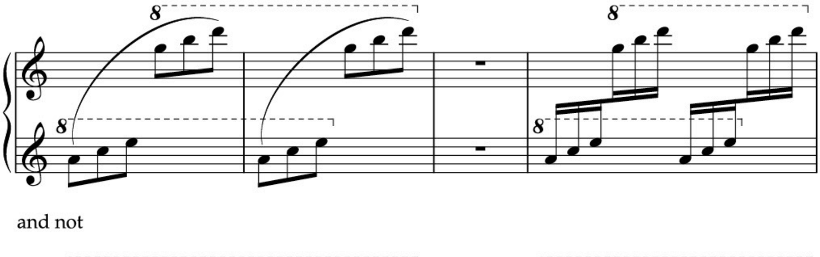
Octave signs

It is best to write the occasional extreme ledger-line notes at pitch, as this shows the contour of the line and indicates the hand stretch for the player. It is helpful to add the pitch name beside a note of five or more ledger lines, enclosed in a box or circle. This is especially important in ensemble music, where the keyboard player may need to look away from the music frequently (see lower example, p. 325).

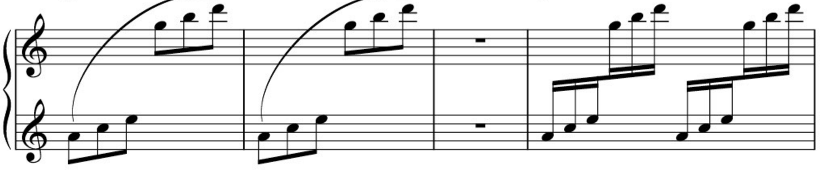
For more than the occasional ledger-line note, octave signs may be used freely, although it is best if possible to keep a passage in a single transposition (i.e. representing one geographical position on the keyboard).

An octave sign applies only to the stave above or below which it is placed. Even in single-line passage-work it is best to use individual signs for each stave, to avoid ambiguity. If both hands are displaced by one or two octaves, both staves require *8va* or *15ma* signs, even where there is a common beam for both hands (bar 4):

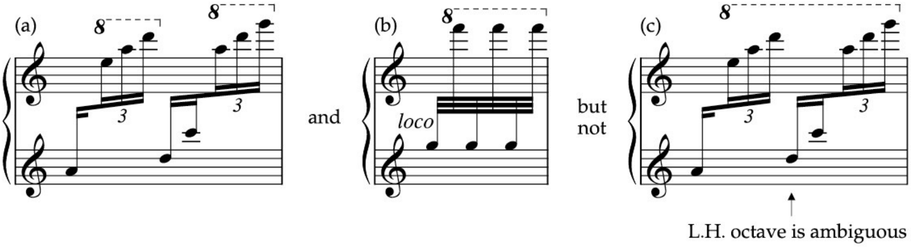
both hands use octave transpositions



and not



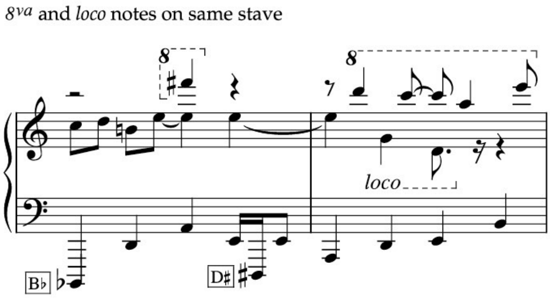
When octave transposition occurs only in one hand of a common beam, individual octave signs should enclose only the relevant notes (a), so that the notes of the other hand are not mistakenly included in the octave transposition (c). When it is impractical to use separate octave signs, add *loco* ('at pitch') to the stave that is notated at sounding pitch (b):



OCTAVE-TRANSPOSED AND 'AT PITCH' NOTES ON ONE STAVE

An octave sign applies to all parts on a stave. A note written with an octave transposition should not share a stave with a note to be played simultaneously at pitch (*loco*) if there is a feasible alternative layout. Transfer either the *ottava* or the *loco* pitches to another stave. If necessary, add a third stave for this.

Where there is not room for a third stave, the occasional octave-transposed note may be placed on the same stave as notes played at pitch, provided that the extent of the octave transposition is absolutely clear. For clarification, extend a dotted line vertically to encompass occasional octave-transposed pitches (see *Vertical extension line*, p. 31); for occasional notes written at pitch, extend a horizontal dotted line after *loco* for the relevant duration:

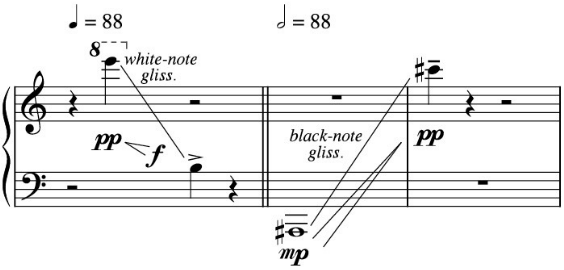


(See also *Octave signs*, p. 28.)

Glissandos

A solid diagonal line indicates a glissando. The glissando should not be written out as a scale, as this represents separate fingering for each note.

The starting note will normally indicate whether the glissando is on the white or the black keys, but this may be clarified by the instruction *white-note gliss.* or *black-note gliss.*:


♩ = 88
𝅗𝅥 = 88
8
white-note gliss.
pp
f
black-note gliss.
pp
mp

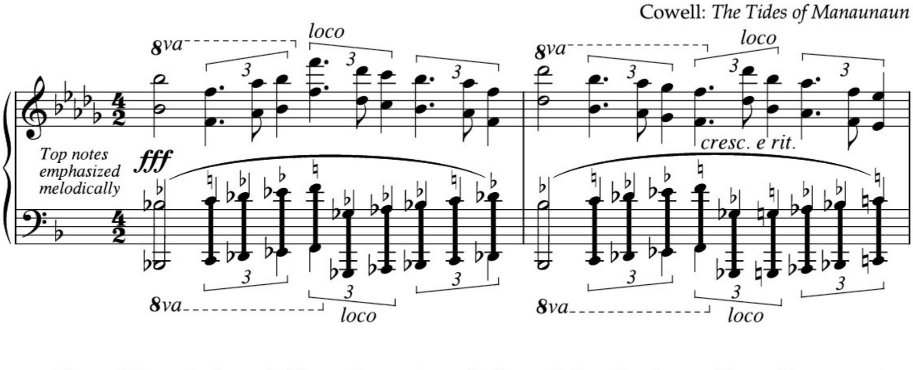
(See also *Glissando on the strings*, p. 340; for general notation, see *Glissandos*, p. 140.)

Note clusters

When more than a few adjacent notes are to be played simultaneously, notate these as a note cluster, in order to save writing (and reading!) handfuls of adjacent notes and accidentals.

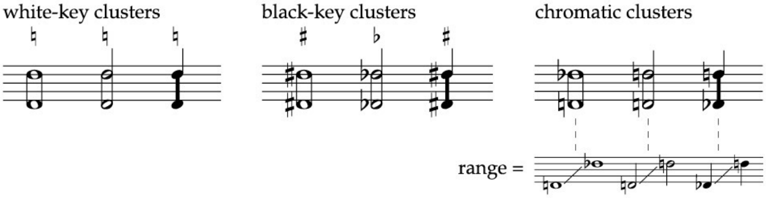
Henry Cowell was the first composer to use specific notation for clusters (he instructs the pianist that the left-hand clusters are to be played with the forearm):

Cowell: *The Tides of Manaunaun*


8va
loco
3
Top notes emphasized melodically
fff
cresc. e rit.
8va
loco

Cowell's notation defines the outer pitches of the cluster with ordinary noteheads. Both sides of the minim and semibreve noteheads are joined with a stem; shorter note-values are joined with a centred vertical bar:

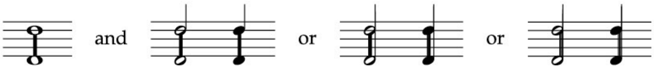
Cowell's notation



(See *Defining the type of cluster*, p. 328.)

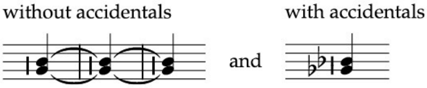
As an alternative design, a vertical bar may join notes of any duration. However, the bars are not as visually apparent, especially in the last two examples:

alternative notation



For clusters with a narrow range, place the bar before the chord to make it more visible. If there are accidentals, keep the bar beside the noteheads (between accidentals and chord):

narrow-range clusters

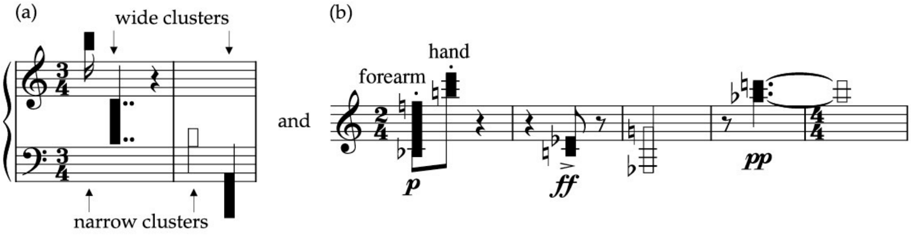


(It is usually better to write clusters of only three or four notes in full if there is room. However, there is an obvious advantage in using cluster notation where there are many tied chords.)

A cluster may also be notated as a narrow rectangle in which square or rounded ends replace its outer noteheads. Semibreves and minims are white rectangles, shorter values are black rectangles.

The rectangle is useful for indicating approximate-pitch clusters, since it may be placed above, below or in the middle of the system without ledger lines. Thus its outer notes can appear appropriately imprecise – see following example (a). Define clusters intended to be approximately pitched in an explanatory note: 'clusters to be in the approximate pitch range indicated'. (For options to show approximate pitch without a stave, see *On a line or grid: Chords and clusters*, p. 642.)

If rectangles are to represent precise cluster ranges, then chords above and below a stave require ledger lines as normal (b):



If a piece requires both precise-pitch and approximate-pitch clusters, use clusters with noteheads for precise pitches, and rectangles for approximate pitches.

A cluster to be played in a particular way requires a verbal instruction: *with palm*, *fist*, *forearm*, etc. (as in (b) above).

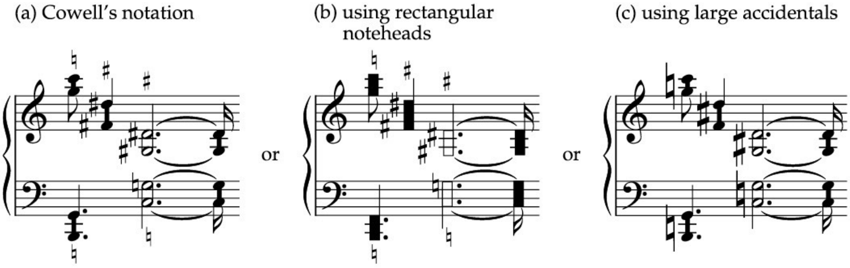
TIES AND DURATION DOTS

A cluster that has conventional outer noteheads requires a tie and duration dot for both noteheads. Place these at both ends of a rectangular cluster. (Small-interval clusters may take a single duration dot: see example, p. 642.)

Defining the type of cluster

BLACK- AND WHITE-KEY CLUSTERS

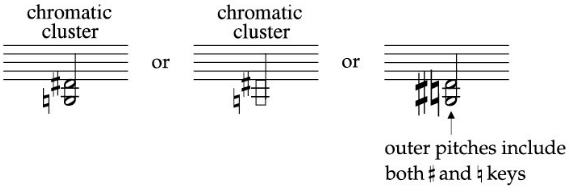
Cowell defined black- and white-key clusters with accidentals placed directly above a chord on the upper stave, and above or below a chord on the lower stave. This is clear and space-efficient notation. Assign the outer pitches of black-key clusters correct accidentals (a). Rectangular clusters of precise pitch may also be defined in this way (b). Alternatively, an over-sized accidental may be placed in front of the chord replacing all other accidentals. These large symbols should be avoided if they overly distort note-spacing, although they do not do so in this example (c):



Black and white rectangles should always define duration and not black and white keys. Shading must not contradict duration, otherwise minim and crotchet values cannot be distinguished.

CHROMATIC CLUSTERS

For precisely pitched chromatic clusters, it is best to assign individual accidentals to the outer notes. Although not essential, this does clarify these pitches. (The third example is less clear in this respect although its notation can be clarified in a performance note.) Define the cluster type with the written instruction *chromatic cluster*:



VERBAL DEFINITION

When all clusters in a work are of the same type, it is acceptable to indicate this once only in the preface or as a footnote at the first appearance, e.g. 'all clusters are chromatic'.

It may be appropriate to describe the occasional white- or black-key cluster verbally rather than to place accidentals above or below the stave.

Alternatively, to distinguish black- and white-key clusters, state at the outset that a cluster with flat or sharp outer pitches is black-key, a cluster without accidentals or with natural signs is white-key (or a cluster without accidentals is chromatic, if this is is the case).

(For notation of silent clusters, see *Silently depressed keys*, p. 338; for cluster glissandos, see *With clusters*, p. 143.)

Stave layouts

Layouts for four hands

DUET FORMAT

The upper part is labelled *Primo* or *I*, the lower part *Secondo* or *II*. The traditional arrangement of placing the parts on facing pages (Table 1 (a), p. 331) is essential in educational music since a pupil's part requires a separate page (a score would contain too much information for the pupil to read, and a page not placed directly in front of the player too difficult to see at an oblique angle). Facing pages should contain the same number of bars (for page-turns). For orientation, where practical, it is helpful if each part contains the same number of bars on each system.

For concert repertoire, the traditional arrangement makes it almost impossible to study the music. It has been replaced largely by score arrangement, *Primo* above *Secondo* (b). This format has the advantage that each player can see exactly what is happening in the other part at all times (see Table 1, opposite).

TWO-PIANO FORMAT

This uses the score arrangement (b). The top staves are labelled *Piano I* or *I*, the lower staves *Piano II* or *II*.

For both piano duet and two-piano arrangements in score format, place tempo markings above each pair of staves, so that they are clearly visible for each pianist.

Player with two keyboards

When one player plays two keyboards simultaneously (e.g. two electronic keyboards placed one above the other), place the music for each keyboard on a separate stave or pair of staves. Assign each stave or pair of staves individual curly braces and barlines. (The systemic barline on the left-hand side of the music always joins the whole system.) The smaller keyboard is placed above the larger one, and therefore the stave (or staves) for the upper keyboard should appear above those of the lower one. Label the staves of each keyboard in the margin. The layout is the same as for score arrangement of piano duet and two pianos (see Table 1 (b), opposite).

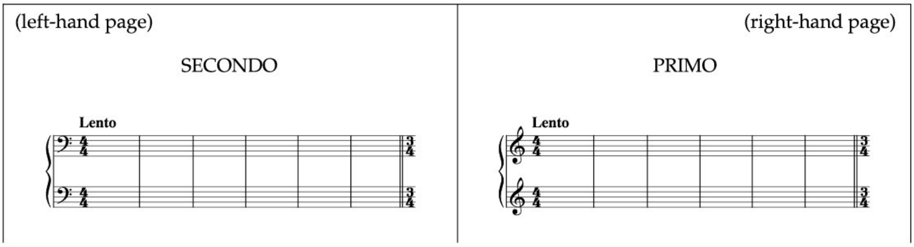
When writing for two keyboards, use a single stave for each where possible, as it is hard to read three or four staves at once. However, if both hands alternate on each keyboard, one or both keyboards may require two staves to clarify hand distribution.

If celesta and piano play simultaneously in a doubling part, assign the notes for each instrument to separate staves and add instrument labels above each stave. (Usually a celesta is played on the right and therefore its notes should be placed on the upper stave – i.e. allocated to the right hand.)

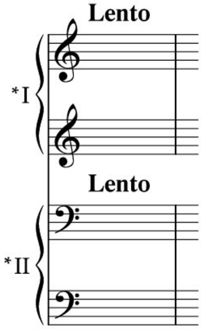
(For one player alternating two keyboards, see *Stave layout for a doubling part*, p. 512.)

TABLE 1: Piano layouts

(a) traditional piano duet format


(left-hand page)
SECONDO
Lento
(right-hand page)
PRIMO
Lento

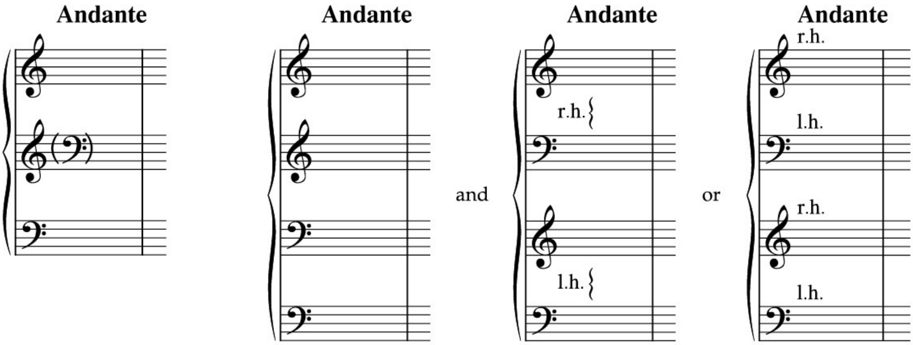
(b) score arrangement for piano duet and two pianos


Lento
*I
Lento
*II

* or Primo and Secondo (piano duet only)

(c) solo piano layouts of three and four staves

three staves   four staves


Andante
Andante
and
Andante
r.h.
l.h.
or
Andante
r.h.
l.h.
r.h.
l.h.

Layouts for solo piano

The piano's capacity to sustain not only with the damper pedal but also with the sostenuto (or middle) pedal enables it to convey multiple-layered textures. The piano can also manage large numbers of voices, which makes it potentially the most complex of instruments to notate.

When a piece involves many layers of sustained materials, the piano system may at times need three or more staves. It is better to separate out dense textures onto a third or fourth stave if multiple parts are otherwise hard to read. However, the more staves there are, the harder it is to read the whole system, so be economical with further staves.

LAYOUTS OF THREE OR MORE STAVES

In the first instance aim to arrange material on the system in pitch order, as this is easiest to read.

The curly brace and barlines join all staves of a system.

In a three-stave layout, the hands may share a third stave, as long as separate stems show hand allocation.

In a four-stave layout, where appropriate, assign the right hand the upper two staves and the left hand the lower two staves. If both hands share material linked by beams, phrasing and so on, it may be clearer to separate different material onto pairs of adjacent staves. It is helpful to label the initial three- or four-stave system with its hand distribution – see Table 1 (c), p. 331.

PIANO NOTATION

Pedalling

Pedal indications

Place these beneath the lowest stave of the system, below all other notation including an *8ᵛᵃ bassa* sign. Where different pedals are simultaneous, or markings overlap, place them in the order given in Table 2, opposite: this reflects their physical layout. It also enables the pedals that require the most precise and frequent manoeuvres to be closest to the notes.

It is usually very helpful to confirm the continued holding down of pedals at the start of a new system (see final column):

TABLE 2: Pedal indications

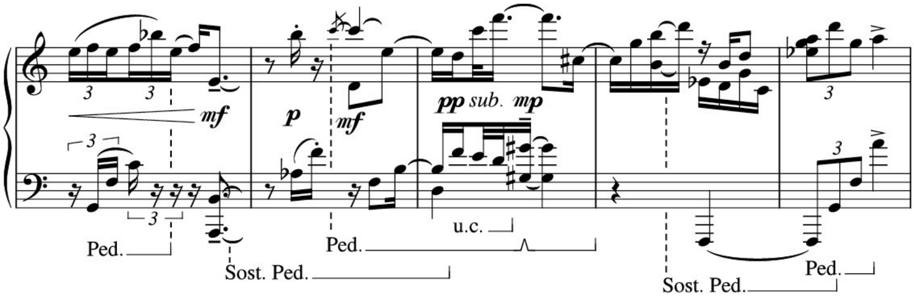
		activate	release	retake after clearing	to confirm pedalling at the beginning of a new system
damper (or sustaining) pedal		Ped. ________	⌋	—⋀—	(Ped.)
	or	𝔓𝔢𝔡.	❋	❋ 𝔓𝔢𝔡.	(𝔓𝔢𝔡.)
sostenuto (or middle) pedal		Sost. Ped. ______	⌋	—⋀—	(Sost. Ped.) ____
una corda (or soft) pedal		una corda	tre corde		(u.c.)
	or	una corda ______	⌋		

Separate, short pedal markings for the same pedal should be brought in as close as possible to the lowest stave so that they are not overlooked. Consequently, consecutive pedal-and-release signs for a particular pedal on the same system will not necessarily align on the same horizontal level. However, an individual pedal-and-release instruction should always align, for clarity. If there is room, consecutive signs may be aligned, but the main consideration should be that no sign is too far below the stave – or it may go unnoticed (see following example).

Indicating precise pedalling

Correct pedalling relies on accurate notation. Pedal indications must be vertically aligned precisely beneath the relevant notes. The pedal is depressed at the beginning of its symbol: on the 'P' of 'Ped.', on the 'S' of 'Sost. ped.' The upward vertical of an extension line most accurately indicates release points (see *Extent of pedalling*, p. 334).

To clarify the precise point of activation in fast or complex music, extend a vertical dotted line between a note and a pedal sign, especially where the pedal marking is some distance from the stave:



EXTENT OF PEDALLING

An extension line terminating with an upward vertical line may indicate the duration of any of the pedals. The line should be solid to distinguish it from the dotted octave extension line.

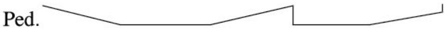
The duration of the sostenuto pedal should always be indicated with an extension line.

It is advantageous to use the traditional damper release sign ✻ if that pedal is held without clearing for an extended passage, since a long, continuous extension line parallel to the stave is visually distracting (see first example under *Notes sustained with a pedal*, p. 337).

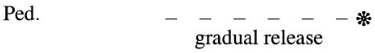
GRADUAL DEPRESSION AND RELEASE

Gradual depression and release of a pedal is marked by a diagonal line (a). Where a very slow lifting may require an impractically long diagonal line, use a dotted horizontal line instead. (This line must be a different design from an octave extension line, in order to distinguish the two.) In addition, a verbal instruction is helpful, especially to clarify the function of a long line (b):

(a)



(b)



Damper pedal

INTRODUCTION

Pedalling has traditionally been regarded as a standard expressive device and therefore passages that specifically are not to use pedal should be marked *senza pedale*. (Do not abbreviate to *s.p.* as this may be taken to refer to the sostenuto pedal.) This instruction may be cancelled by *con* (or *col*) *pedale* if deemed necessary.

Give detailed pedalling only where absolutely necessary. Where it is not essential to be too prescriptive, general verbal instructions are always preferable, e.g. *col Ped. sempre* or *with pedal until otherwise indicated* or even *pedal every chord*. The continued depression of a single pedal for many bars is often marked *Ped. sempre*. However, this term is ambiguous: it may also refer to the discretionary use of the damper pedal. Instead, use conventional pedal indications. For added clarity, indicate with an arrow that a pedal continues to be held down: (Ped.) →

Another school of thought is that if pedalling is required it should be marked.

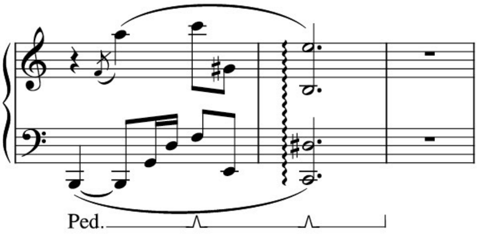
NOTATION

The damper pedal has a traditional engraving symbol 𝔓𝔢𝔡., which should not be used for either of the other piano pedals. (The symbol may, however, be used for other instruments that also release a damping mechanism – e.g. celesta, vibraphone.) Never use the abbreviation *sust.* (or *sus.*) *pedal*, as this can be confused with the sostenuto pedal.

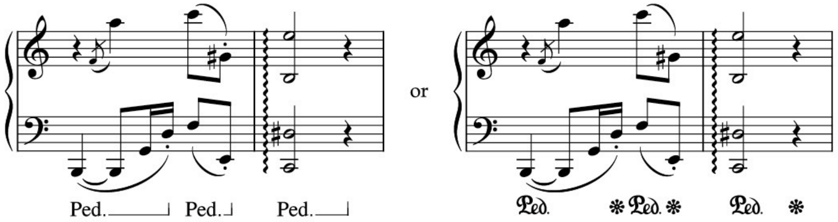
The traditional symbol has the great advantage of being immediately recognizable and also readily distinguishable from the other pedal signs (see second example under *Notes sustained with a pedal*, p. 337). However, to show very precise alignment, an ordinary roman typeface is recommended for the damper pedal symbol. ('P' alone is also acceptable.) This allows a vertically stemmed 'P' to align more precisely under notes than the traditional sign (see example under *Indicating precise pedalling*, p. 333); compare styles in the following two examples.

It is a convention to align the pedal symbol with the struck note, even though the pedal is depressed immediately after the note is struck – before, if there is a rest. It is equally valid to indicate a pedal change exactly where it occurs: just after the next note is sounded.

When the pedal is to be retaken immediately, the traditional release sign ❋ often requires too much space to show accurate pedal manoeuvres: the positioning of ❋𝔓𝔢𝔡. can, misleadingly, look as if there is a break in sound between one pedal marking and the next. Instead, the retake sign _⋀_ may be attached to an extension line (or be freestanding). It indicates a quick release and immediate depression of the pedal. When the pedal is released at the end of a bar and is not re-activated immediately, the release sign aligns with the barline (see end of bar 2, below). When a barline precedes a new attack, the release or retake sign aligns with, or just after, the following notes (beginning of bar 2):



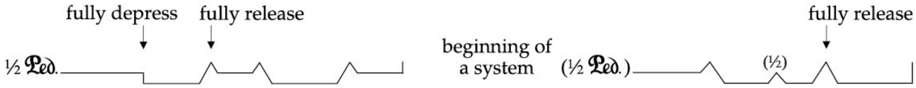
Where the sound is to be cleared by the pedal before the following attack, use separate markings. The traditional symbols may be used where there is sufficient space for them:



Where a repeated pattern of pedalling occurs, it is acceptable to indicate *sim.* (in the position where such markings would be placed) rather than to over-mark the music. Re-instate fresh pedal signs once the pedalling is no longer the same.

Half-pedalling

Labelled *½ Ped.*, the position of the 'P' signals the depression point. Half-pedalling is shown graphically as follows:



The sostenuto pedal

The sostenuto (or middle) pedal is activated after a note has been struck but while it is held. The pedal holds the resonances of such notes but allows other notes played subsequently to remain unsustained. (If the damper pedal is already depressed when the sostenuto pedal is activated, the sostenuto pedal will sustain everything.)

This pedal should be labelled *Sost. Ped.* ('S.P.' is an ambiguous label) or *Ped. Sost.* (this gives the depression point a clear vertical 'P'). The term *third pedal* is confusing since it is actually the middle pedal.

The una corda pedal

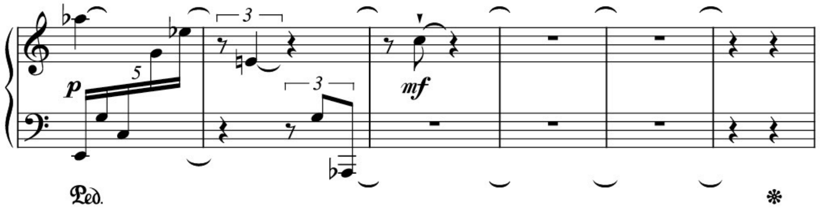
The una corda pedal is activated before and released after a note is played. Thus the label to depress the pedal, *una corda* (abbrev. *u.c.*), and the instruction to release it, *tre corde* (abbrev. *t.c.*), do not usually require the precise notation given to the other pedals. However, if necessary, a horizontal extension line may be used. Where an *una corda* marking has a shorter extension line than the other pedals, it may be placed closer to the stave (see example under *Indicating precise pedalling*, p. 333).

Indicate prolonged use of the soft pedal with *una corda sempre*. The terms *con sord.* and *senza sord.* should not be used to prescribe the una corda pedal.

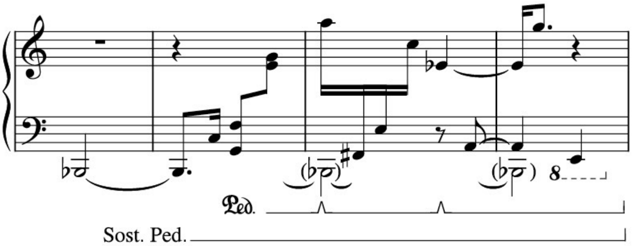
Notes sustained with a pedal

It may be impractical for notes sustained by the damper or sostenuto pedal to be written for their full sounding durations. Instead they should take convenient note lengths and the pedal sign should demarcate their durations (see *Laissez vibrer*, p. 72).

For the benefit of the score-reader, open ties may indicate the continuing resonances of sustained notes as well, either after each note (or chord), or across each barline:



It is useful to indicate notes that are held in the sostenuto pedal (as opposed to the damper pedal) in brackets at the beginning of a new system – or, if useful, at the beginning of each bar – as long as this does not clutter the part. The repeated pitches clarify that they should be sustained. Placing the sustained notes in brackets shows that the hand is released from the keys:

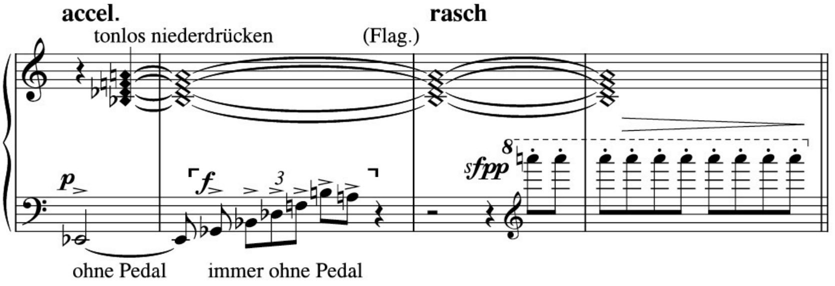


Notes to be held manually (i.e. not just in a pedal) should be notated for their full length.

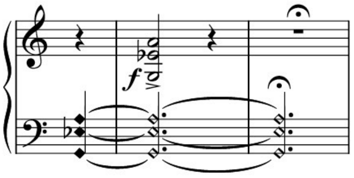
Silently depressed keys

A silently depressed key releases the dampers of that key and when another key is struck, sympathetic vibrations resonate. (A note struck a perfect fourth, fifth or octave from a silently depressed key produces the strongest harmonics.)

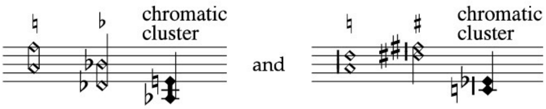
Write the silently depressed key as a diamond-shaped note. Crotchet and shorter note-values take black diamond notes:


Schoenberg: *Pierrot Lunaire*
accel.
tonlos niederdrücken
(Flag.)
rasch
p
f
3
sfpp
8
ohne Pedal
immer ohne Pedal

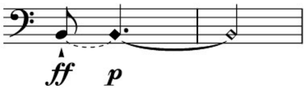
A pitch can be sustained once the key is released by first silently depressing the lower octave (or a lower note related to the same harmonic series). Notate the depressed notes for the required duration of the sound:



A cluster uses the same notation style as ordinary note clusters:


chromatic
cluster
and
chromatic
cluster

A note may be retaken silently after a percussive attack, to sustain it with a sudden drop in dynamic. A dotted tie attached to the silently depressed note is a useful way of conveying this sense of continuity:



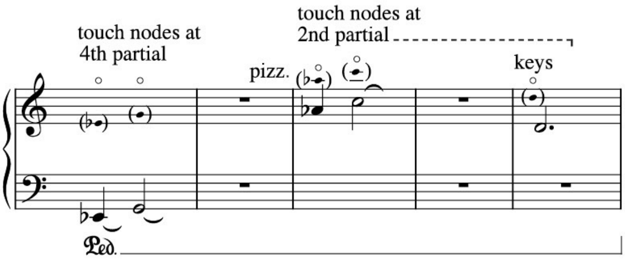
Effects produced inside the piano

Harmonics

One hand strikes the key (the fundamental), the other touches the strings of the same pitch at a specified point (the node: this may be ½, ⅓ or ¼ of the length of the string) to produce a particular harmonic.

Notate the pitch to be played on the keys as normal. Indicate the sounding pitch of the harmonic (the partial) in brackets above, topped with a harmonic circle. This technique requires an explanatory instruction: *Touch the node at the* n^{th} *partial.*

To produce a harmonic while plucking the string, one hand plucks the written pitch while the other touches the node of the same string. Add the instruction *pizz.* (bar 3):



(See *Plucking the strings*, below; for numbering of harmonics, see *Natural harmonics*, p. 414.)

Playing on the strings

Place verbal instructions above the relevant stave to indicate effects produced inside the piano. When the hand that plays on the strings returns to the keys, add the instruction *keys* (see example above).

PLUCKING THE STRINGS

This is indicated *pizz.*, more specifically:

verbal instructions	**technique**
pizz. (fingertip)	with fingertip
pizz. (nail) *or* pizz.◠	with fingernail
pizz. (plectrum)	with plectrum

Pizz. ord. indicates plucking with the fingertip after another pizzicato technique has been used.

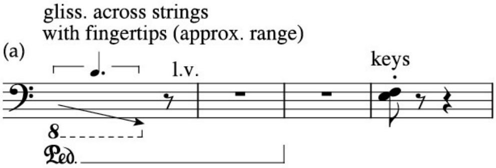
GLISSANDO ON THE STRINGS

It is important to differentiate a glissando across many strings from a lengthwise scrape or slide along the strings of a single pitch:

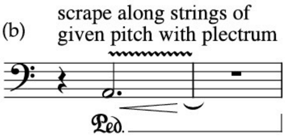
glissando/strum across strings
glissando/scrape along the strings of given pitch
with { fingertip / fingernail / plectrum/[other object] }

A conventional diagonal glissando line can indicate only a glissando across the strings of different pitches (a). A trill line may be used to indicate the duration of a scrape along the wound copper strings of a single pitch (b):

(a)

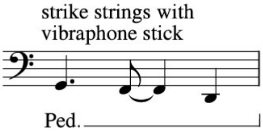

gliss. across strings
with fingertips (approx. range)
l.v.
keys
8
Ped.

(b)


scrape along strings of
given pitch with plectrum
Ped.

STRIKING THE STRINGS

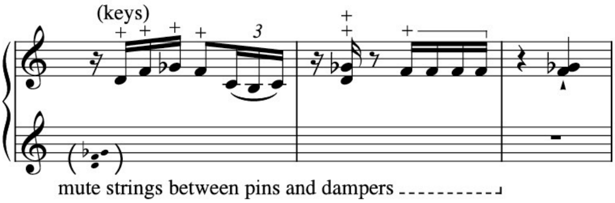
A verbal instruction is the simplest way to indicate striking the strings with mallets, beaters, sticks or any other object:


strike strings with
vibraphone stick
Ped.

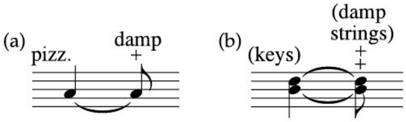
DAMPING THE STRINGS

Strings may be damped or muted individually with one hand while the other plays on the keys.

At the start of the passage, notate the pitches to be damped as small notes in brackets on the stave of the hand that damps the strings. Place a cross over each key affected by the muting (or extend a horizontal bracket for its duration):

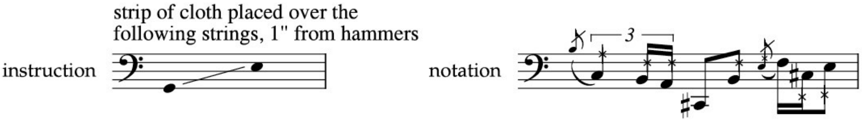

(keys)
3
mute strings between pins and dampers

A plus sign may also show damping with a finger once the string is plucked (a) and after keys have been played (b). The instruction *damp* is needed only at the first appearance:



Strings may be muted collectively by laying material (cloth, wood, metal strip, etc.) across them. Specify the range that the prescribed material should cover, i.e. the pitches that will be muted. A cross through the stems of the muted notes may indicate the difference between ordinary notes and these muted (prepared) notes. (The crosses are not essential for the pianist, since no further action is required once the cloth is in place, and should not be used if they clutter the part.)

Using the following instruction, the subsequent notation would be:


strip of cloth placed over the
following strings, 1" from hammers
instruction
notation
3

PERCUSSIVE EFFECTS ON THE FRAME

To knock parts of the instrument such as the soundboard, frame or lid, place crossed noteheads at the edge of the stave together with a verbal instruction. Alternatively, create a separate line mid-system or above the staves (for notation style, see examples under *Harp*: *Percussive sounds on body of instrument*, p. 369).

The works of George Crumb are a good reference point for playing inside the piano: they give clear instructions for the techniques required (see, for instance, *Celestial Mechanics*).

Consider carefully the most appropriate page format for a pianist who may be required to perform manoeuvres inside the piano (see *Landscape format*, p. 482; see also *Performance instructions*, p. 491).

The prepared piano

Materials to be inserted between the strings, and their dimensions, must be stated at the outset. It is essential to specify the make of piano on which the preparation has been calculated, since modification may be required between different makes.

The piano notation should indicate the keys that the pianist is to play, regardless of actual sounding pitches. (It is advisable to state in the preparation instructions any necessary resultant pitches.) If required, the difference between prepared and ordinary notes may be indicated with a cross through the stems of the prepared notes, as when strings are muted collectively (see lower example, p. 341).

Details for preparation should be given in the preface as well as in the appropriate place in the music. (Cage's prepared piano scores are classic examples, for instance, *Sonatas and Interludes*; see also Adès, *Chamber Symphony*, which gives comprehensive instructions for preparation.)

ORGAN NOTATION

Page format

Organ music is best presented in landscape format since music stands are often necessarily high in relation to eye level and the organist may have difficulty reading the top of a portrait-format page. Landscape format will have fewer systems per page and thus the player need move his or her eye less frequently around the page. This is a great advantage to a player who needs to shift attention from the music to the physical aspects of playing.

(See also *Landscape format*, p. 482.)

Page-turns must be organized with care, especially where they coincide with changes in registration (see *Page-turns*, p. 559).

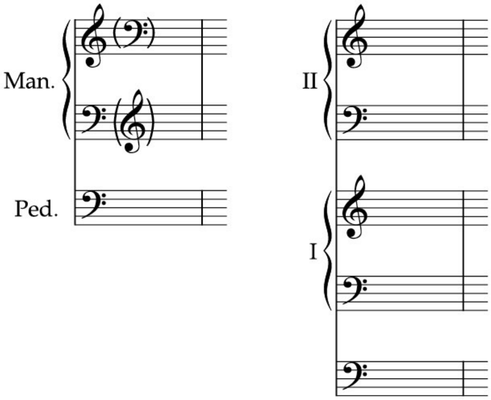
System layout

Organ music with a pedal part should normally be written on three staves. The pedal notes are always placed exclusively on the lowest stave. The manual staves are braced together; the pedal stave is excluded from the brace. It is essential that the pedal stave has separate barlines: the player requires the visual separation of manual and pedal staves.

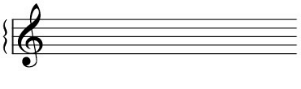
It is recommended that three staves be used throughout, even if pedal notes are infrequent: the blank stave signals just that. However, an extended section for manuals alone may omit the pedal stave. If it is necessary to compress a layout to avoid a page-turn, then all redundant staves may be deleted and the system reduced to a minimum.

The staves at the beginning of a piece are usually labelled *Manual* (or *Man.*) and *Pedal* (or *Ped.*), although this is not strictly necessary for a standard three-stave layout. Labelling is essential only for the sake of clarity or at a change of layout: when the system is reduced to one or two staves, and if the two-stave manual part requires further staves.

It is best to use no more than two staves for the manuals even when the hands alternate between two or more of them: the greater the number of staves the harder the music becomes to read. Keep right-hand notes in the upper stave, left-hand notes in the lower stave, regardless of manual changes. Under the extreme conditions of complex interchanges between hands and manuals it is permissible to have separate staves for each manual, but only if a two-stave manual part would otherwise be very cluttered. In this case, the pair of staves for each manual takes a separate curly brace and separate barlines, and the manual numerals or labels (if prescribed) may be indicated in the margin:



A single-stave manual part must take a compressed curly brace if there is also a pedal stave present, to distinguish the two: a pedal stave never takes a brace:



PLACING TEMPI AND DYNAMICS

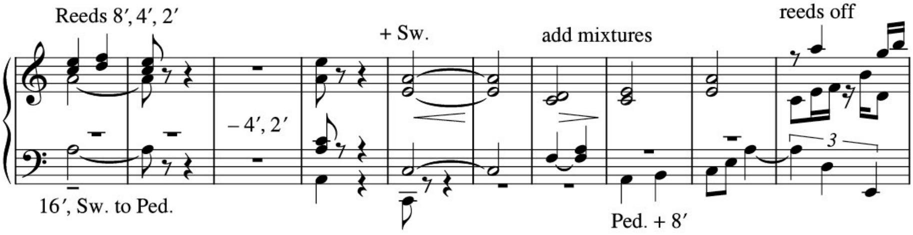
Tempo indications are placed above the top stave. Dynamics for the manuals go between the two staves, or may be allocated below each manual stave separately. Dynamics for the pedals go below the pedal stave. Pedals often do not have separate dynamics unless there is a pedal solo, or where a section begins with a pedal entry at a new dynamic (see example, p. 346).

Two-stave layout

An organ accompaniment to a choral work may be arranged on just two staves, either to save space in a vocal score or when the part also functions as a keyboard accompaniment for rehearsal purposes. (From the organist's point of view, however, it is always preferable that the pedals have their own stave, even if playing only occasionally.)

The most important feature of a two-stave part is that it is absolutely clear which notes are for manuals and which for pedals. This is because the standard octave for pedal notes is assumed to be 16' (i.e. sounding an octave lower than written) unless otherwise indicated (see also *Registration*, p. 346).

The left hand and pedals share the lower stave. Left-hand notes may move into the upper stave, taking down-stems, if they would be notated more clearly in the treble clef (see following example, last bar). On the lower stave pedal notes take down-stems, left-hand notes up-stems. The left-hand and pedal parts have separate rests, although they may share a whole bar's rest (bar 3). Maintain rests for the absent part (the last bar has no rest since the left-hand notes have moved into the upper stave; in this case the pedal part can resume ordinary stem direction):



When either the left-hand or the pedal part is absent for an extended passage, it is acceptable to omit rests for whichever part is silent and to resume conventional stem direction for the single part that remains. In this case, the pedals alone are labelled *Ped.*, the left hand alone is labelled *Man.*, or *without Ped.*

Manuals

The number and description of manuals can change from instrument to instrument. The physical position of manuals on the console is also variable. Manuals are chosen according to the available stops, and according to any prescribed registration (see *Registration*, p. 346).

The range of stops available on individual manuals is so variable that it is best not to prescribe specific manuals, but rather to give general dynamic descriptions. The one exception is the Swell box, which must be specified if it is required (see example opposite; see also *Crescendos and diminuendos*, p. 347).

To prescribe contrasting manuals use roman numerals, in preference to names (Great, Choir, etc), so that manuals may be chosen from those present. (Numerals are universal, whereas manual names are region-specific.) The numerical order is hierarchical, I being the most powerful manual in dynamic terms (therefore, usually, I = Great).

PLACING MANUAL INDICATIONS

Manual indications go above the relevant stave or are centred between the manual staves if they apply to both: the less information that needs to be indicated the clearer the part. When hands change manual in different places, place a manual label above each stave (see following example, bar 5, p. 346). If necessary, a vertical bracket or arrow may point the exact place of change in passage-work. An arrow is less distracting (bar 9). Occasionally a bracket may be the only clear way to show that not all notes are included in the manual change (see following example, bar 12, p. 346).

Coupling

When stops of one manual are added to another manual or to the pedals, this is known as coupling. When coupling occurs, the most common indications are as follows. It is customary to see indications such as these set out at the beginning of the piece:

I (+II) *or* I (II coupled)

Indicate changes during a piece with as brief a description as possible:

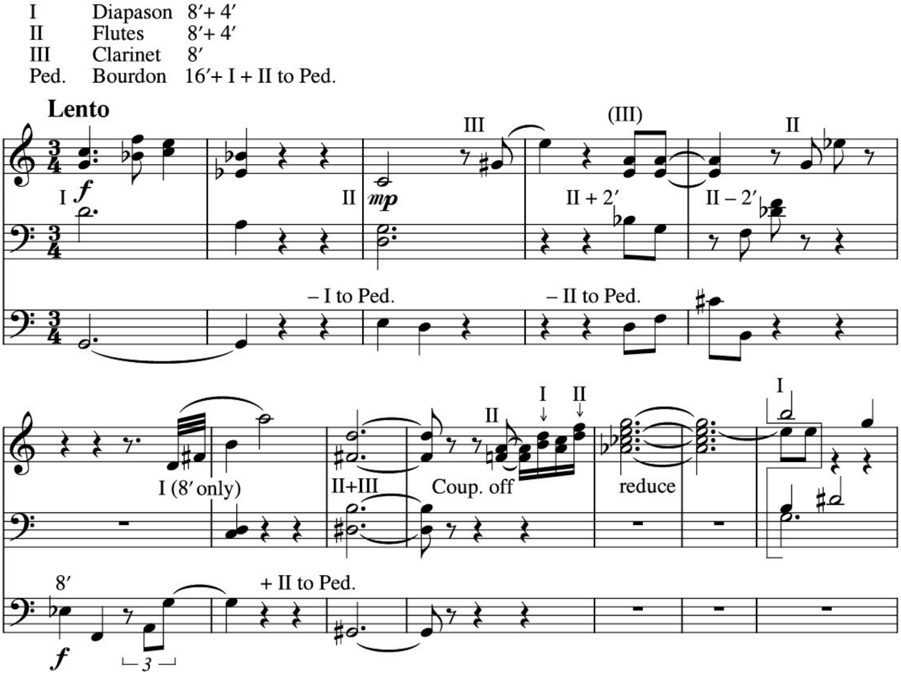
+ II *or* add II

Coupling is cancelled as follows. Assuming a manual indication of I:

– II *or* II off

or as *Coup. off* or *uncoupled*.

Coupling changes should be placed in the same position as manual indications:


I Diapason 8′+ 4′
II Flutes 8′+ 4′
III Clarinet 8′
Ped. Bourdon 16′+ I + II to Ped.
Lento
I f
II mp
III
(III)
II + 2′
II – 2′
II
– I to Ped.
– II to Ped.
I (8′ only)
II+III
Coup. off
II
I
II
reduce
I
8′
f
3
+ II to Ped.

Registration

Registration is defined by stops comprising timbre and pitch. For manuals, pitches other than the standard 8' stop should be specified (Table 3 (a)). The standard pitch for the pedal is 16' unless otherwise indicated; therefore specify *8′ only* if pedal notes are to sound at written pitch.

Regarding timbres, since specific instruments have an individual range of stops, it is advisable to specify only dynamics and general tonal characteristics chosen from families of stops (e.g. Principals, Flutes, Reeds, Strings) and the Mutation stops (Mixtures). This leaves the player free to choose appropriate stops (see Table 3 (b), opposite).

Before the beginning of the piece, it may be helpful to indicate the style of instrument, so that all possible information is available in order to adapt the piece to another organ in the most appropriate way. A more prescriptive registration (as in Table 3 (c), opposite) may be adapted for the organ in question.

Registration may be given in a number of ways. It is customary to prescribe it for each manual at the outset, listing it above the tempo indication, at the top left of the opening page. In the course of the piece, place registration changes above the stave to which they refer, or between the manuals staves if they refer to both.

List manual stops above pedal stops; longest pipes first, separately for each manual and for the pedals:

TABLE 3: Registration examples

(a) without defining specific manuals		(b) prescribing stops but not specific manuals		(c) prescribing manuals and stops	
I	8′, 4′	I	Principal 8′, 4′	Great	Principal 8′, 4′
II	8′, 4′	II	Flutes 8′, 4′	Swell	Flutes 8′, 4′
III	8′	III	Clarinet 8′	Choir	Clarinet 8′
Pedal	16′, 8′ + I to Ped.	Pedal	16′, 8′ + I to Ped.	Pedal	16′, 8′ + Gt. to Ped.

Crescendos and diminuendos

Adding or reducing stops (a ‘register crescendo/diminuendo’) is prescribed ‘add’ and ‘reduce’. These terms differentiate such a dynamic change from the crescendo and diminuendo of a Swell box.

The Swell box is the only means of making dynamic alterations without adding or reducing stops. The use of dynamic hairpins is assumed to mean opening and closing the Swell box (see example, p. 344). The alternative indications ‘Swell (closed)/(open)’ and ‘open/close Swell box’ are more cumbersome. (If the player cannot achieve the required dynamic alteration with the Swell, then he/she will make a register diminuendo/crescendo. It is unnecessary to prescribe this.)

Pedal markings

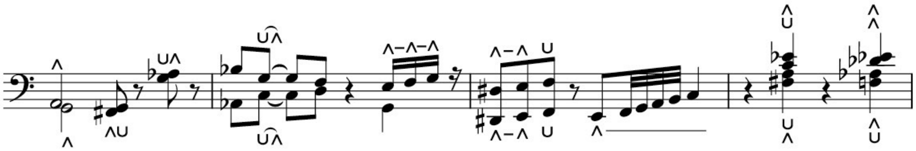
Indications of heel ∪ or o and toe ∧ or ∨ are usually the technical province of the player, but will be given as technical advice in a tutor. Except in a tutor, the organist will always prefer to read the resultant articulation or phrasing the composer intends, leaving him or her free to work out the best way of achieving it.

Place indications for the right foot above the stave, below for the left foot (the symbols are not inverted below the stave). A substitution of the heel for the toe or toe for the heel on the same note is usually marked with a short tie (a dash is sometimes used):

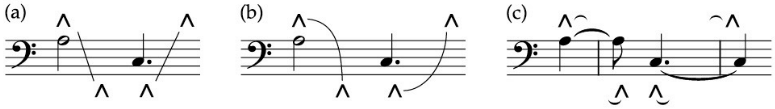
∪͡∧ ∧͡∪ or ∪–∧ ∧–∪

A slide between adjacent pedals while retaining the foot position is usually marked with a dash: ∪–∪ and ∧–∧ (a short tie, as illustrated on p. 347, is sometimes used).

An illustration of these pedal markings is as follows:



A substitution of one foot for the other on the same note is marked by a diagonal line (a), a rounded line (b) or short slurs (c) – the latter is more discreet, and useful where ties are present:



Keys held down with wedges or weights

Use a contrasting note shape to indicate the point at which a note or range is no longer held manually but must be weighted, wedged down or held by an assistant. An instruction above or below the appropriate stave should indicate this.

It is important to show the full duration of all held keys. If the notation of many held keys and their ties clutters the stave, place these pitches on a third manual stave above the others. If the ties give the passage a dense appearance, consider using stemless notes and extenders up to the point of release (see *Extenders at notehead level*, p. 632).

(For notation specific to an electronic keyboard, see *Sampled sounds*, p. 601.)

12

Harp

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In this chapter the term ‘pitch name’ refers to a pitch letter and its accidental (e.g. C♮). (For pitch names in Italian, French and German, see Appendix, pp. 651–3.)

General notation

While general notational principles of keyboard music apply to the harp, the technical demands of the instrument are so different that certain pianistic conventions should be avoided. These are outlined below.

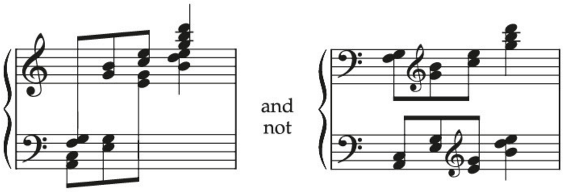
Most instrumentalists can play by touch alone, which allows the player to read the music uninterrupted. The harpist, though, has constantly to check the position of pitches by referring to the coloured strings of the instrument. For this reason it is important not to overload the music with more details than the player can assimilate in the time available.

Distributing notes between the staves

In general the right hand plays the higher notes, the left hand the lower notes. The left hand must play the lowest strings, as the right hand cannot reach them. (Exactly how low the right hand can reach depends on the stretch of the individual player and the design of the instrument.)

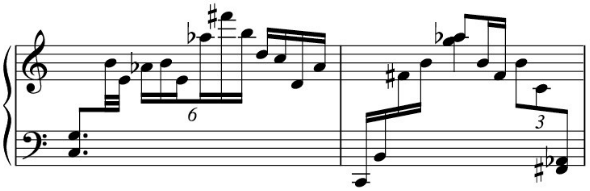
Notes should be placed on the staves to show the musical sense as clearly as possible – more like a score than a keyboard part. Place treble-range notes on the upper stave, lower notes on the lower stave. Thus when the pitches for both hands are close together, place them together on the same stave. Do not arrange such notes on separate staves for each hand (see example below); the harpist prefers to see a direct relationship between the arrangement of notes on the two staves and their position on the instrument. Presenting notes in the same range on one stave means that it is easy for the player to rearrange hand distribution if required.

When a passage of close-position chords has even numbers of notes, divide the notes equally between the hands. The notes for each hand take separate stems:

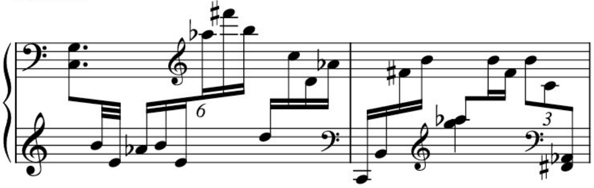


(Where one or both hands requires two stem directions, it is, obviously, necessary to allocate the notes for each hand a separate stave.)

For extended passage-work of predominantly single-line writing, the part should not attempt to distribute notes between the hands unless there is an obvious hand allocation: instead, players prefer to work out their own choreography. Do not allow pitches to overlap on opposite staves, as might be notated in keyboard music, unless absolutely necessary. This is very confusing for the player, who will have to rewrite the part before it can be played:



and not



The tuning mechanism

There are seven pedals, each of which controls a pitch of the scale in every octave. They can each be set to one of three positions: ♭, ♮ or ♯.

The pedal settings do not affect the top G and bottom D and C strings. These strings must be pre-tuned independently to one setting (♭, ♮ or ♯) for an entire piece or movement (see *Scordatura*, p. 368).

PRINCIPLE OF INCLUDING PEDAL SETTINGS

Pedal settings should be worked out and indicated throughout a piece, even though a harpist may rearrange these for greater convenience. Some harpists may want to work out their own pedal changes, but it is better to provide a part that shows that the pedal arrangements are technically viable. This will make it apparent that the composer is aware of the technical demands being placed on the player.

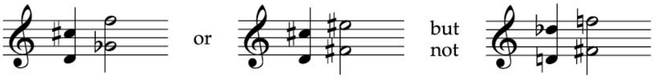
(See *Pedal settings*, p. 355.)

Note-spelling

The spelling of pitches is critical because enharmonically equivalent notes are played on different strings. Spell all notes to agree with the pedal settings, regardless of tonality or chromatic voice-leading.

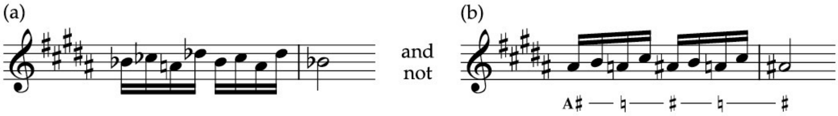
Double sharps and double flats should never be used, as such notes do not exist as pedal settings.

Chords should not be written to look as if a string requires two different pedal positions simultaneously:

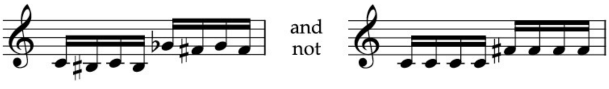


An exception to this approach to note-spelling is the use of tonal configurations such as large chords or arpeggios: these are easier to read as enharmonically correct entities, regardless of the pedal setting. (A harpist may perform quick pedal changes, if necessary, in order to have the convenience of playing such chords and arpeggios as standard learnt figures.)

A passage should be written enharmonically to minimise pedal movements, even within a tonal context. The following passage can be arranged so that it needs no pedal changes (a); it should not be left requiring athletic pedal changes (b):



Spell notes to be played on alternate strings according to the pedal settings:



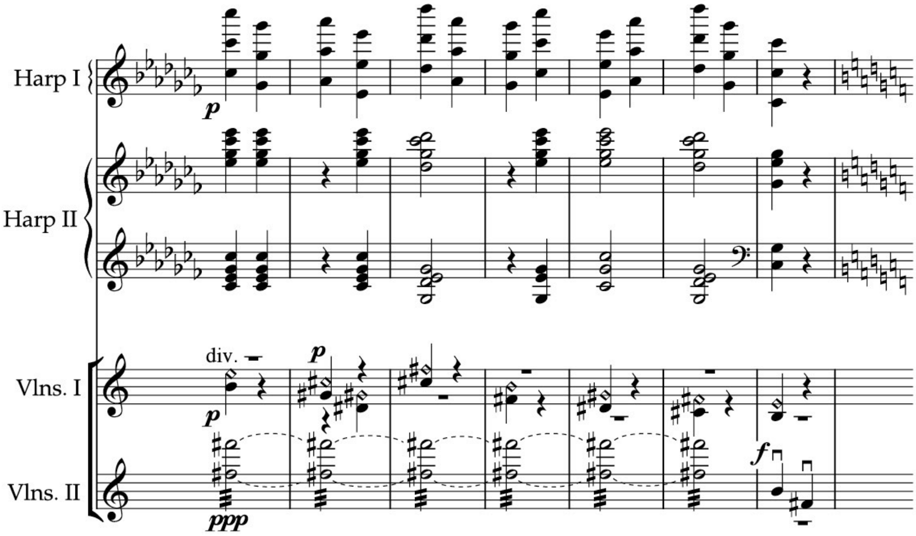
Harp strings sound to best advantage in their ♭ positions, where the string is at its longest length and vibrates most fully (see Bartók extract, p. 354). Notes to be played in this way should be written as flats.

Where a full score exists independently of a playing part, it should match the note-spelling used for the part.

Key signatures

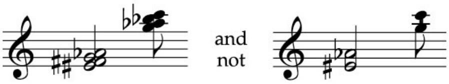
Passages of enharmonically altered note-spelling may make little sense of an existing key signature. The key signature can be omitted altogether, or a more relevant one substituted. The following passage in the key of B major takes a C♭ major key signature:

Bartók: *Concerto for Orchestra*

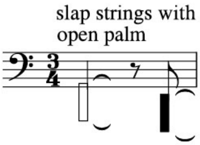


Note clusters

Note clusters should be written as chords comprising the relevant strings and not as clusters, since each hand can play only four notes at a time. (Larger chords must be strummed: see *Chord glissandos (Strumming)*, p. 360.)



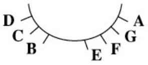
A written cluster should be used only for a special technique in which the hand slaps the strings with an open palm. This technique requires a verbal instruction at its first appearance:



(For notation of *Note clusters*, see p. 326.)

Pedal settings

The notation for pedal settings reflects the physical layout of the pedals:



Each pitch is spelled with an accidental, even when this requires writing seven natural signs. (Harpists tune strings in their ♭ position and therefore, for instance, an F string does not equal F♮.) Left-foot pedals appear on the left:

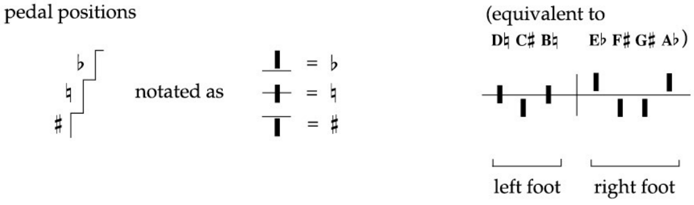
D♮ C♯ B♮ E♭ F♯ G♯ A♭
left foot right foot

Arranged on two lines, right-foot pedals go above left-foot ones. Stack the pedals directly above one another, as harpists are adept at changing a string with each foot simultaneously:

E♭ F♯ G♯ A♭
D♮ C♯ B♮

Some players prefer the left-foot pedal arrangement to be written B–C–D, to reflect the changing of pedals by alternative feet working out from the centre (E then B, F, C, etc.).

Harpists themselves frequently use a diagram to indicate the position of the pedal notches because this is faster to assimilate than pitch names. The horizontal line represents the ♮ position:



It is best to leave such diagrams for players to write in, according to their own preferences.

Individual pedal changes (i.e. less than a complete seven-note layout) are indicated by pitch name, even when a diagram represents a complete layout.

PEDAL SETTINGS AND ACCIDENTALS

Indicating pedal settings does not obviate the need for an accidental to be placed in front of each relevant pitch in the normal way. Cautionary accidentals are useful, as for any other instrument, even though once a pedal is set in a given position (♭, ♮ or ♯), no octave of that pitch can play anything else. As well as indicating the pedal changes, an accidental should be cancelled in the usual way.

Placing pedal settings

Ideally, place the pedal settings mid-system so that there can be no doubt as to which system they refer. If possible, position the staves sufficiently far apart for there to be room for the harpist to write in personal preferences for the settings as well. It is a big advantage for the player to have all necessary information contained within the system. If there is no room mid-system (e.g. a passage has double-stemmed beams), place a complete pedal setting above the system, and individual pitch-name settings below.

Some harpists like to see the pedal settings just before an entry, others at the first available rest once the strings have stopped vibrating after a previous passage. Given that a player looks ahead, it is best to place pedal settings at the following entry, especially after a page-turn.

Giving complete pedal settings

It is essential to give a complete pedal setting at the beginning of a piece, movement or new section, and before a glissando (see *Glissandos*, p. 357).

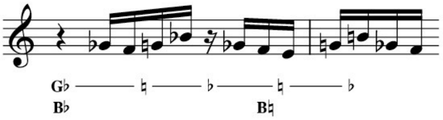
In rehearsal, players need to be able to switch quickly between sections. It is therefore very helpful to add complete settings frequently: at rehearsal marks, after rest periods and at the top of a new page.

Individual pedal changes

To indicate an individual pedal change, give the pitch letter and its new accidental. For example, when the B pedal in the ♭ position changes to ♮, write B♮, never B♭ – B♮ (see following example). Place the indications mid-system, right foot above left foot if stacked.

The harpist will leave a vibrating string as long as possible before a pedal change so that the altered pitch does not sound unintentionally. Whenever possible, reflect this by placing the pedal setting where it is sensible to change it. If time allows, indicate a pedal change before or after (and not during) a dramatic silence, as the mechanics of pedal changing are relatively noisy in a small hall or recording studio.

To indicate that the foot does not leave a particular pedal for consecutive retunings, extend a line between pedal accidentals (this technical information is left to the player to mark unless it is a particularly tricky manoeuvre):



Note that such a line does not in itself indicate a pedal glissando (see *Pedal glissandos*, p. 359).

PEDAL SETTINGS IN A FULL SCORE

Where a full score exists independently of a playing part, it need not contain pedal settings. The only exception is to show the pitches of a glissando (see *Glissandos*, below).

Playing style of chords

If there is no instruction, players will judge according to context whether or not to spread chords. Therefore indicate where a particular style is intended. Give either a general instruction or individual ones, beside chords or passages as required (see *Performance instructions*, p. 491).

Where chords should not be rolled, indicate this as *sempre non arpeggiando* (abbrev. *arpegg. or arp.*).

To roll all chords, indicate this as *sempre arpeggiando*.

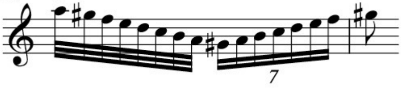
Within a general instruction, any individual chords or passages that contradict it may be marked separately as *non arpeggiando* (or with a vertical square bracket) and *arpeggiando* (or with a wavy arpeggio line).

(For notation of *Arpeggiated chords*, see p. 131; see also *Chord glissandos (Strumming)*, p. 360.)

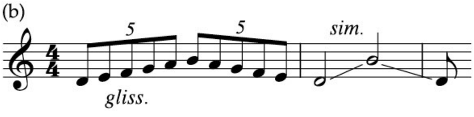
Glissandos

Always give a written-out scale passage an instruction so that the player knows whether to pluck each string individually (*non gliss.*) or not (*gliss.*). A measured glissando must be notated as a scale in the required rhythm (a); a repeated pattern may be abbreviated after stating the initial glissando (b):

(a)



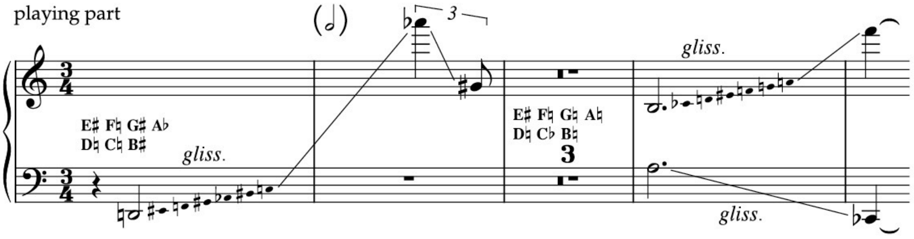
(b)



For an unmeasured glissando, give the starting and finishing notes and connect them with a diagonal line. The starting note takes the full duration of the glissando, when this is possible in one note-value. Otherwise it makes up the value of a bar, half-bar or beat (see following example; see also *Glissandos: Durations of more than one note-value*, p. 145).

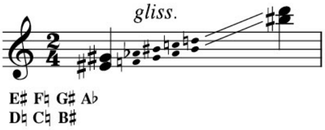
Provide a complete pedal setting for a glissando, and for each new glissando that has a different pedal setting. The harpist must know the intended setting of every pedal: do not assume pedals are set as required from a previous passage, as the player may have rearranged them.

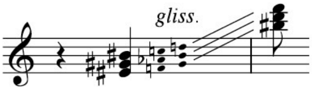
Where space allows in the player's part, it is useful to indicate the first octave of glissando pitches, as well as the pedal settings. (It is unnecessary to give both in a full score.) The octave of pitches is best notated as stemless small notes. It is helpful if each note without a flat or sharp takes a natural sign. Glissando pitches are sometimes written as an octave of stemmed notes, beamed together, but this might suggest that the notes are separately fingered (i.e. *non gliss.*). A glissando in each hand needs an indication of the pitches in one hand only (bar 4):



Parallel-chord glissandos

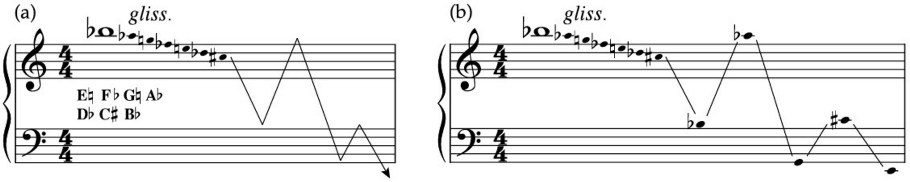
Each note of the chord takes a separate glissando line. Indicate an octave of pitches as a series of chords until at least all pitches are covered:





Continuous sweeps

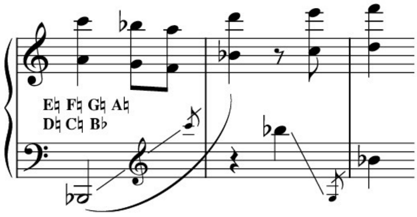
A glissando line can reflect any required contour. An arrow at the end of the glissando line indicates reaching an unspecified note (a); to be more prescriptive, indicate a pitch at the end of each glissando peak or trough (b):



(See also *Glissandos: To and from unspecified pitches*, p. 142.)

Glissandos with clef changes

When it is necessary to change clef during the course of a glissando, place the new clef mid-way through the glissando. Where practical, use ledger-line notes rather than a change of clef (bar 2):

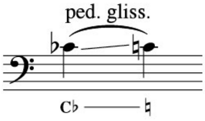


(See also *Glissandos: With clef changes*, p. 142.)

Many glissando techniques are possible on the harp. These are best specified with verbal instructions where they occur. In his *Modern Study of the Harp* (G. Schirmer, 2nd edn, 1948). Carlos Salzedo catalogues and suggests appropriate notation for many glissando techniques.

Pedal glissandos

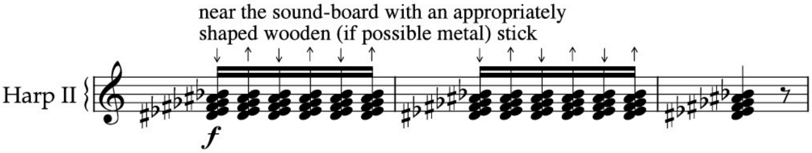
Once a string has been plucked, it is caught or released by the pedal mechanism in order to change the pitch. To notate this, place a glissando line between the two pitches and slur them to show that the second note is not plucked. Add the instruction *ped. gliss.* at first appearance and extend a line between the pedal settings:



Chord glissandos (Strumming)

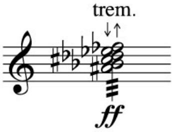
An adjacent-string chord may be strummed, rather than arpeggiated with separate fingers, for a rapid glissando. An arrow above or in front of the chord indicates this. The arrow shows the direction of the strum:

Bartók: *Concerto for Orchestra*


near the sound-board with an appropriately
shaped wooden (if possible metal) stick
Harp II
f

(See also example *Hand damping in rhythm*, p. 365.)

To indicate unmeasured strumming, use tremolo notation:



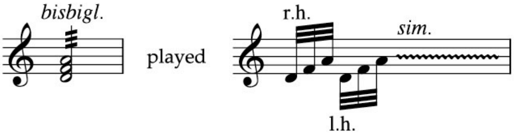
Without indicating arrows it is still likely that the harpist will strum chords at a loud dynamic. For a quiet dynamic a chord marked with tremolo strokes is played *bisbigliando*, i.e. not strummed (see below).

Tremolos and bisbigliando

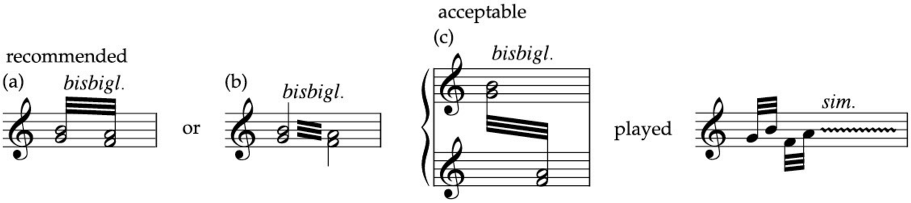
The term *bisbigliando* (Italian, 'whispering'; abbrev. *bisbigl.* or *bisb.*) indicates an unmeasured rapid tremolo between two or more strings played quietly in the middle and upper registers of the harp.

The group of notes is best written as a tremolo chord, rather than as individual rhythms, even though each note will be played separately. Only one stem is necessary, even though the harpist will (most likely) use both hands. A *bisbigliando* passage will be played by alternating both hands, if both are free to do so.

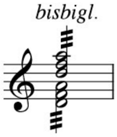
All passages to be played in this way should be labelled *bisbigliando*, so that the harpist does not attempt to measure the notes or chords in rhythm nor to interpret the tremolo as the repetition (or alternation) of blocked chords:



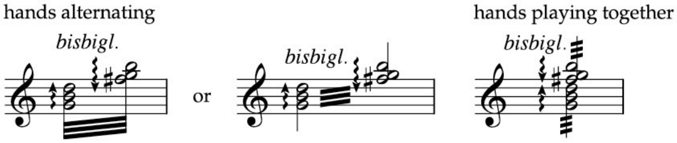
When the player is required to apply this technique to alternating chords as opposed to single notes, allocate a separate chord for each hand. It is unnecessary to place the chords on two staves, although this is sometimes used (c). Place the tremolo beams between the chords (a). Stems may point in opposite directions on the one stave to show hand allocation, although this is not strictly necessary (b):


recommended
(a)
bisbigl.
or
(b)
bisbigl.
acceptable
(c)
bisbigl.
played
sim.

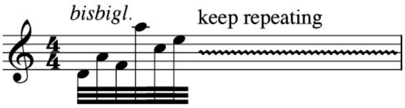
When both hands play together rather than alternating, place both chords at the beginning of the duration:



When the groups of notes are to be played in a particular direction, place arpeggio lines in front of the chords, with arrows to indicate their direction (if the direction is other than both hands upwards):


hands alternating
bisbigl.
or
bisbigl.
hands playing together
bisbigl.

A specific order of notes must be written out in full:

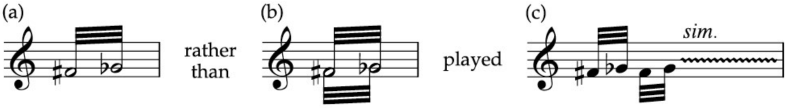

bisbigl.
keep repeating

It is worth noting that although a prescribed order does slow down the playing, the passage should still be marked *bisbigliando* to indicate the character of the music.

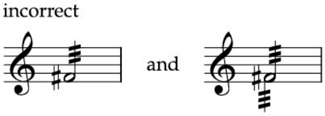
Single-pitch and single-chord tremolos (see p. 362) should be labelled *bisbigliando* if this is the required effect.

Single-pitch tremolos

All the notes of the chromatic scale, with the exception of D♮, G♮ and A♮, can be doubled with their enharmonic equivalent on an adjacent string. The alternation of these two strings is written as a tremolo and must indicate both enharmonic notes. Notate the lowest string first, as the harpist will start with this. Both hands (if free) will play both notes in turn, but the tremolo is best notated on one stave only, and with single stems (a). Two stems may be used, but this is unnecessary (b). To notate the literal actions of each hand is also unnecessary (c):

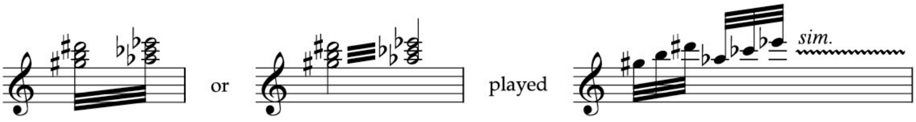


Do not use ordinary single-note tremolo notation for this technique, as this does not show the alternation of two strings:



Single-chord tremolos

As with notation of a single-pitch tremolo, a single-chord tremolo must show the enharmonically equivalent pitches:



Damping and laissez vibrer

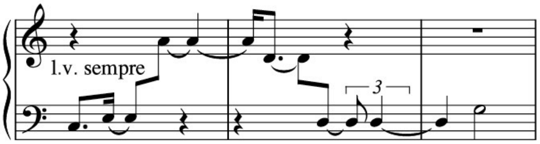
The harp is a resonating instrument. While damping must be left to the player's discretion according to what is physically possible, a composition should give specific damping instructions where it is essential to damp, leaving the player in no doubt at any time as to which notes are damped and which are not.

Laissez vibrer

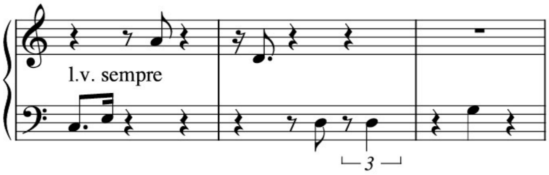
To indicate that the strings are left to vibrate, indicate either *laissez vibrer* (*l.v.*) or an open tie after the last note(s) of a passage. (Both indications together are unnecessary.)

Where there is to be no damping, give a general instruction: *l.v. sempre* or *leave all strings to ring on*. This instruction can be qualified with the words *unless otherwise indicated*, and individual chords or passages marked to be damped (see *Damping instructions*, below).

In *laissez vibrer* passage-work, rather than short notes and rests, use tied notes to show that the line of music is continuous:



rather than

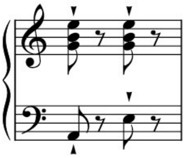


(See also *Laissez vibrer*, p. 72.)

Damping instructions

Give a general instruction when resonance should be kept to a minimum: *damp in all rests*. For an occasional instruction, *secco* (Italian, 'dry') is a better description for a resonating instrument than *staccato*; the harpist will then damp to phrase the music, but not necessarily after every note unless the tempo is very slow.

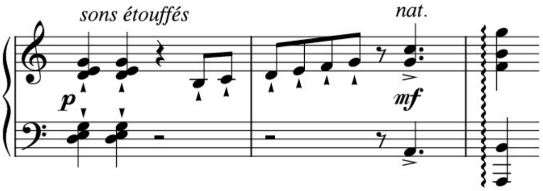
To damp individual strings immediately after they have been played gives a deliberately percussive effect. A staccato wedge on a note indicates this; the player will damp it immediately, if possible:



STACCATO DAMPING *(SONS ÉTOUFFÉS)*

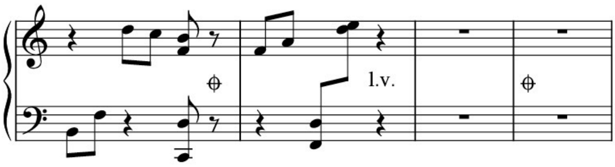
Sons étouffés (French, 'damped sounds') involves damping every note before playing the next. The playing hand will usually damp a passage when the intervals are within the scope of the hand span (about a tenth); the other hand must damp a passage involving very wide leaps.

Staccato wedges to each note may accompany the instruction *sons étouffés*. This emphasizes the mode of playing: harpists are reluctant to damp every note unless each is written as such. To return to normal playing indicate *ord.*, *nat.* or *norm.*:

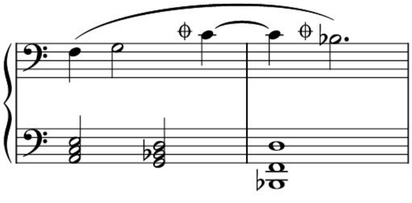


HAND DAMPING

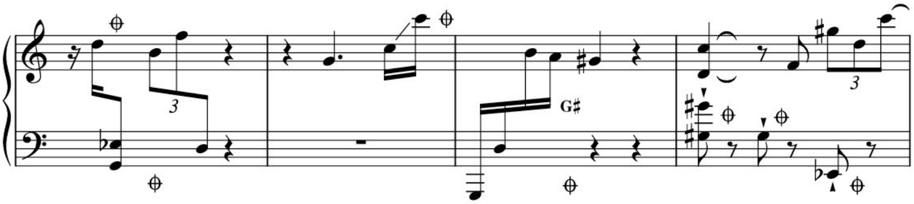
Once a phrase is finished, the player's hands are free to damp all resonating strings. (This is the normal playing method unless otherwise indicated.) Individual instructions to damp should use the sign ⦶. To indicate damping the strings with both hands, place one sign between the staves. To damp at the beginning of a bar, place the sign just after the barline (bar 4):



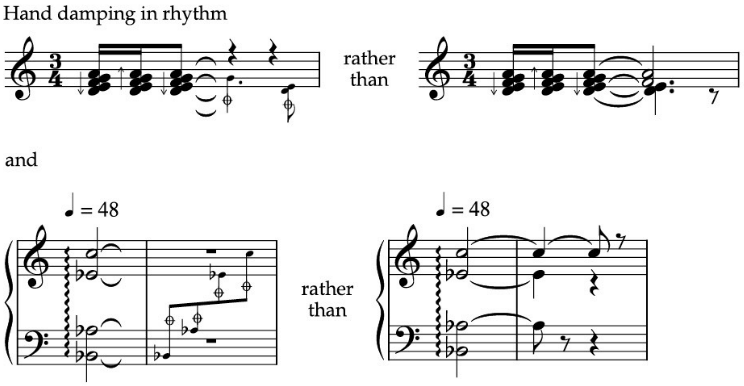
If both hands must damp, both need rests. However, in exceptional circumstances, damping signs may replace rests where the use of rests would destroy the sense of musical phrase:



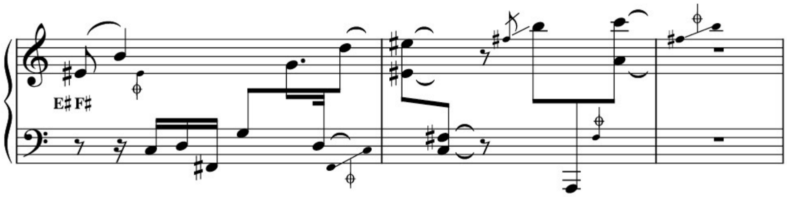
If necessary, use one sign for each hand. Place the sign after the relevant notes exactly where the strings are to be damped. The sign is most conspicuous placed as close to the horizontal level of the previous pitches as possible (but not on the stave):



A damping sign may be attached to the stem of small notes to indicate that individual strings should be damped. Use this notation when it is clearer to notate the notes that are to be damped than those that are to be sustained. In the following examples the small notes take note-values to show the rhythm of the damping. Use opposite stem direction to differentiate the damping instructions from the played notes:



The small notes do not necessarily require rhythmic values; crotchet-stemmed notes can simply be placed exactly where the damping is required. To indicate damping a group of strings, connect the small notes with a diagonal line:



Note that to indicate damping specific strings is often not relevant since it is generally the very lowest strings that hold the resonances; also, the sympathetic vibrations depend on the pedal settings at the time the string is plucked.

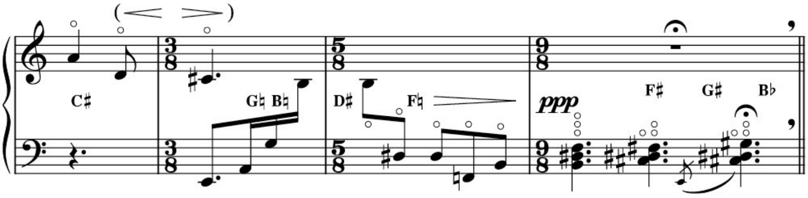
Harmonics

In all cases notate the pitch of the plucked string.

Octave harmonics

These should be written an octave below their sounding pitch, since this is the string that is plucked. Each harmonic note requires a small circle to be placed above it. Any note without a circle is played as an ordinary note. Owing to the hand positions, the right hand can play only one harmonic at a time, the left hand up to three in close position:

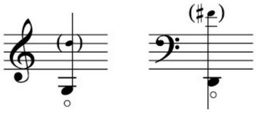
Colin Matthews: *Little Suite for Harp*



Although only the octave harmonic is written in this way, it is a good idea to clarify in a preliminary note or in a footnote that a harmonic sounds an octave higher than written. (Harmonics have sometimes been notated at sounding rather than played pitch.)

Harmonics at the twelfth and seventeenth

There is no standard notation to indicate these harmonics; the clearest policy is to notate both the string and the sounding pitch on one stem. Differentiate the two noteheads, writing the sounding pitch as a small note in brackets and the string as an ordinary note with a circle beneath it:



For clarification, the notation should be explained at the outset or at its first appearance.

Plucking

Where to pluck

Plucking closer than normal to the soundboard (table) is indicated *près de la table* (abbrev. *p.d.l.t.* or *table*). Beware of using 'T' for *table* as a similar symbol is sometimes used to indicate the tuning key. (The tuning key may be placed against or between the strings to produce special effects: see Salzedo, *Modern Study of the Harp*).

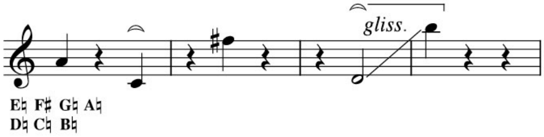
Plucking near the top end of the string is indicated *près des chevilles* (French, 'near the pegs'; abbrev. *p.c.*).

Ord., *nat.* or *norm.* must cancel both instructions (see example under *With the plectrum*, below).

Plucking techniques

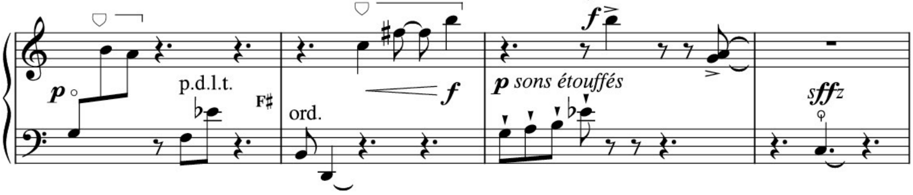
WITH THE FINGERNAIL

To pluck or to slide along the string with the fingernail is traditionally indicated in Italian: *unghia(e)* or *con le unghie* (with the nails). This verbal instruction is now usually replaced by the symbol ⌢ or inverted to ⌣ over the note. A note without the symbol will be plucked normally. Extend a horizontal bracket when more than one note is to be played in this way:



WITH THE PLECTRUM

For occasional use of a plectrum, place a verbal instruction above the stave. (In the extract from his *Concerto for Orchestra*, p. 360, Bartók stipulates the material to be used to achieve the required effect.) Where there are already many written instructions, a symbol such as ▽ is simpler to read:



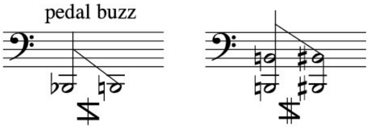
When there is no bracket to enclose the instruction, it should be cancelled by *ord.*, *nat.* or *norm.*

SNAP PIZZICATO

This is written ⚲ or ⦶ (as is the 'Bartók pizzicato' of bowed string instruments). The finger plucks the string *près de la table* and immediately slaps the same finger against the soundboard (see previous example, last bar).

Pedal buzz

To produce the pedal buzz, or clash (if very loud), the pedal is held half-way between two notches when the string is plucked. Notate both pedal settings between which the pedals fall, and place the symbol ≸ between the settings. The symbol ≸ may be used when a single string is plucked:

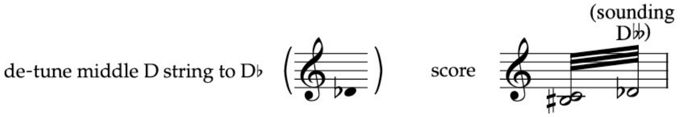


Clarify the symbol with a verbal explanation at its first appearance. (Salzedo calls this technique 'metallic sounds'.)

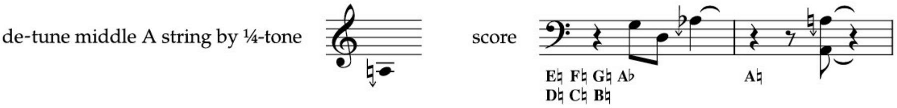
Scordatura

For unconventional tunings, individual strings can be re-tuned in advance of the performance. Tunings for the strings unaffected by the tuning mechanism (the lowest D and C and the highest G string) should be given at the start of a piece or movement: 'tune low D string to D♯.'

Indicate any other re-tuning in the same way (see example below). In the player's part, notate the string that is to be plucked: do not write the sounding pitch as this suggests a different string. In a score, actual concert pitches may be given by pitch name at their first appearance, above or below the stave, to alert the score reader:



Scordatura is most frequently used to create microtonal pitches. Microtonal accidentals should precede the string pitch in a score. They are helpful in a part although not strictly necessary, since once the scordatura is set up the player does not act on this information:

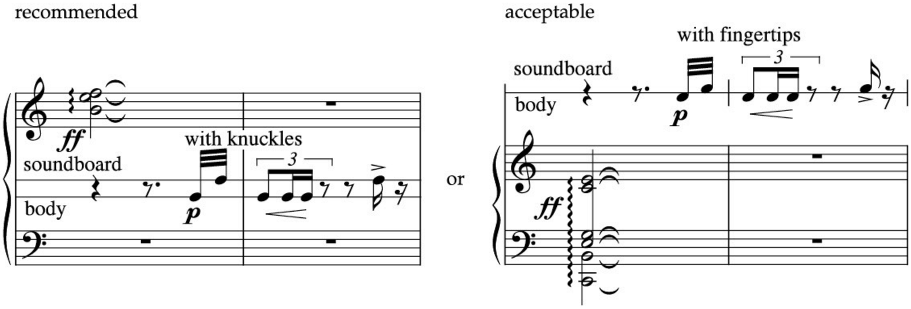

de-tune middle A string by ¼-tone
score
E♮ F♮ G♮ A♭
D♮ C♮ B♮
A♮

(For notation of microtonal accidentals, see *Microtones*, p. 94.)

Percussive sounds on body of instrument

Fingertips, knuckles and palm can each produce very different sounds on the soundboard and body of the harp. Each technique requires a verbal instruction: *with fingertips* or *tap*; *with knuckles* or *knock*; *with palm* or *slap*. The harpist will exploit the most resonant part of the soundboard unless a particular area is specified.

Either allocate a separate line to notate such techniques, or else use crossed (or other unconventional) noteheads. Assign different areas of the instrument separate lines or spaces. Place the notation mid-system if possible, otherwise above the upper stave:


recommended
ff
with knuckles
soundboard
3
body
p
or
acceptable
with fingertips
soundboard
3
body
p
ff

When the part is particularly complex, different noteheads may differentiate these techniques (rectangular notes are used by Berio in, for example, *Sequenza II*, and in some harp parts of Takemitsu).

For further reading, see Carlos Salzedo, *Modern Study of the Harp*, which pioneered many harp techniques. For those techniques not included in this chapter, follow the notation Salzedo uses accompanied by verbal explanations, for clarity. Kurt Stone in his *Music Notation in the Twentieth Century* comprehensively covers Salzedo's techniques and other more recently defined specialized techniques.

13

Classical Guitar

General notation 373

String designation 373

Right-hand fingering 374

Left-hand fingering 375

Left-hand techniques 377

Right-hand techniques 378

Sustaining and damping 383

Harmonics 384

Scordatura 388

General notation

Guitar music is notated on a single stave in the treble clef, sounding an octave lower than written. This transposed range fits comfortably on the treble stave.

If preferred, the clef 𝄠 may be used.

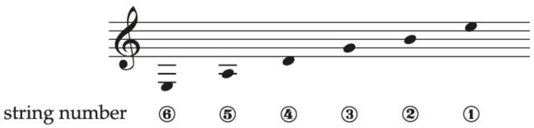
Two staves may occasionally be needed to clarify complex part-writing, but should be used only if absolutely essential. Both staves appear in the treble clef and are joined by a curly brace.

Level of technical detail to include

Printed guitar music usually contains technical information such as string designation, fingering and fret position supplied by a guitarist. The composer should specify strings (and, very occasionally, fingering) for special effects only. The examples below (on pp. 374–7) show string and fingering indications as might be supplied by a guitar editor.

String designation

The basic tuning for the six strings (and their string numbers) is:

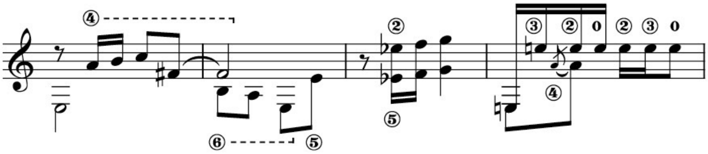


(To notate other tunings, see *Scordatura*, p. 388.)

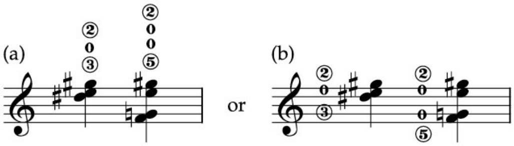
The composer may prescribe a certain string if a specific timbre is required; otherwise the player works out string allocation, based on technical considerations as well as the different sounds of each string.

A circle encloses a string number. Place this above or below the stave, according to whichever position is closest to the relevant note. A horizontal line indicates the continuing use of the same string. (A dotted line is recommended for this, so that solid lines can be reserved for other continuation lines that guitar music needs: fret position and right-hand fingering.)

A zero rather than a string number indicates an open-string pitch (bar 4):



Stack numerals above a chord if there is room to do so (a); where there is little spare vertical space, numerals may encroach onto the stave, although they then become less legible (b):



Right-hand fingering

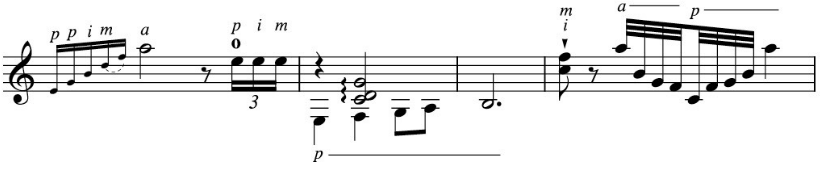
Indicate right-hand fingering only in educational music and in very exceptional circumstances, e.g. to show a special pattern of fingering. Fingering is indicated by the initials of the following Spanish and Italian words:

p = thumb (Spanish: *pulgar*, Italian: *pollice*)
i = index finger (Spanish: *indice*, Italian: *indice*)
m = middle finger (Spanish: *medio*, Italian: *dito medio*)
a = third finger (Spanish: *anular*, Italian: *anulare*)

(The little finger is not normally used for playing, except in the flamenco strumming technique *rasgueado* – see p. 380.)

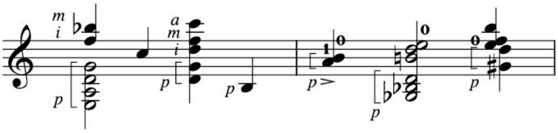
Place fingering above or below the respective notes, if possible clear of the stave. Fingering is a technical instruction and therefore, strictly speaking, should appear in roman typeface; however, italic is recommended, as it helps to differentiate the fingering from other technical text (see *Text typefaces in the music*, p. 492).

A horizontal line follows a fingering to indicate the repeated use of the same finger (some editions use a dotted or even a wavy (trill) line in order to have a visually different line for each commonly used technique):

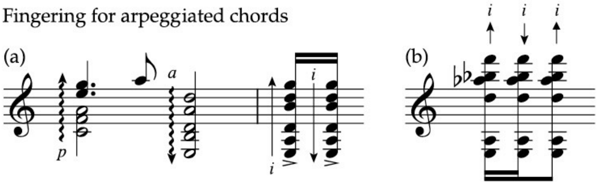


CHORDS

Stack fingering in front of a chord where room allows. A vertical bracket may indicate notes to be played with the same right-hand finger, or, more usually, the thumb (the last chord uses separate stems to clarify which notes the bracket includes):



To specify that one finger is to play an arpeggiated or strummed chord, place the indication at the tail end of the arrow (a); when arrows are positioned above the chord, the fingering goes above the arrows (b):

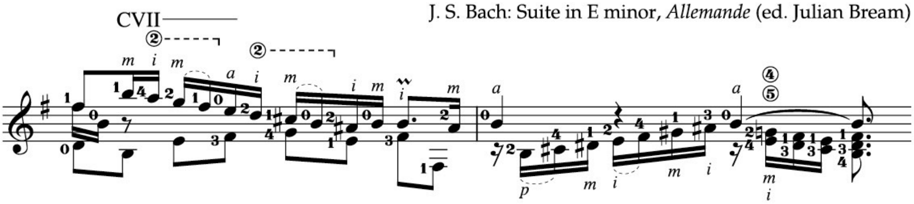

Fingering for arpeggiated chords

(See also *Playing style of chords*, p. 378.)

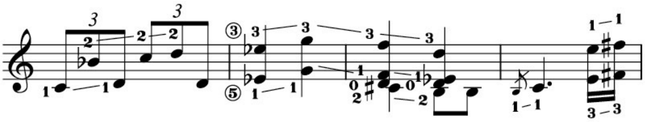
Left-hand fingering

Arabic numerals indicate left-hand fingering: 1, 2, 3 and 4 – the thumb is not used. The open string is a zero and not a small circle. (A small circle is sometimes used for harmonic notation – see *Harmonics*, p. 384.)

Place fingering right beside the notehead, ideally directly in front of, or above, the note. It may be placed within the stave, if necessary, as long as it is legible. Where there is a combination of both left-hand and right-hand fingering as well as string indications, it is the left-hand fingering that goes closest to the notes:


J. S. Bach: Suite in E minor, *Allemande* (ed. Julian Bream)

Where one finger is to continue on the same string but change position, it is helpful to show this by placing a thin line between the finger numerals. The line slopes in the direction of the pitch change; it may cut through a stem if necessary:



(A line connecting two noteheads, rather than two numerals, shows a finger shift in which the second note is not plucked – see *Finger shift*, p. 377.)

Some editions use only short lines (as in bar 4, above) in front of the second numeral. These may be substituted if there is no space for the longer lines or where longer lines might be confused with an audible glissando – although this should have its own specific instruction (see p. 378).

Fret position

A roman numeral indicates the fret at which the left hand places the first finger, and is placed above the stave. Fret numerals are added to promote good fingering practice. They are essential for notating natural harmonics (see p. 386).

BARRÉ

A finger (usually the first, occasionally the third or fourth) holds down all or some of the strings at a specified fret.

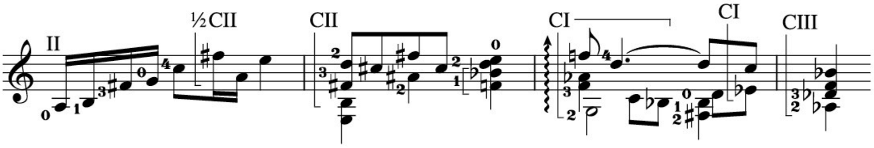
Grand barré is the term used for the covering of four, five or all six strings. It is distinguished from the *half barré*, which covers three or fewer strings, as follows:

grand barré	notated as	C + fret number	e.g. CVII
half barré	notated as	½C + fret number	e.g. ½CIV or ₵IV

The C stands for *capo* or *capotasto*. This term, or its Spanish equivalent *cejillo*, refers to a movable bar used in flamenco music that clamps over the fingerboard to raise the pitch of all the strings.

As a reminder not to change position, a horizontal line (solid or dotted) may extend for the duration of a *barré*: CIII ———— or CI ————┐. A vertical bracket ⎣ or ⎡ may precede a chord to indicate how many strings the first finger stops. The bracket precedes accidentals and left-hand fingering; an arpeggio line is placed before it (see following example, bar 3).

A vertical bracket accompanied by a fingering numeral indicates the use of the same finger across two strings (bar 2, last chord):



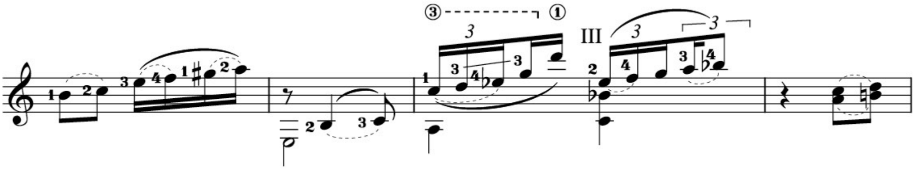
Left-hand techniques

Slurs

In guitar music, the dotted slur is used to indicate left-hand finger work, known as *ligado* or 'left-hand legato'. Only the first note is plucked; using different fingers, the left hand fingers as many notes as are indicated under the slur. (This achieves speed or legato between the notes.)

It is customary to place the dotted slur next to the noteheads, even where there are two or more parts on a stave, in order to keep left-hand fingering instructions (numerals and slurs) close together. However, where the stave is already dense with notation, it may be easier to read the slurs at stem ends (see Bach extract, p. 375).

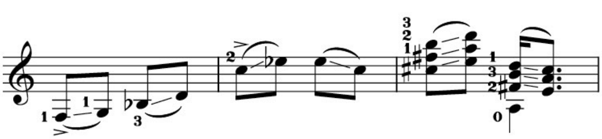
Solid slurs indicate musical phrasing. These may also be placed on the notehead side in two-part writing if necessary (bar 3), since, in guitar music, there is often so much detail to place around the stave:



Glissandos

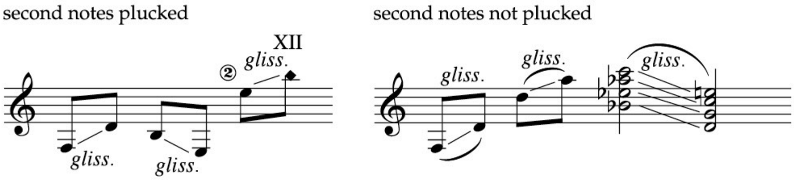
FINGER SHIFT

This is a special technique in which the right hand plucks only the first note while the left hand slides to a second pitch on the same string, with the same finger, without making an audible glissando. Notate a glissando line between the pitches and add a slur to indicate that the second note is included in the one plucked stroke. For further clarification a guitar editor may add fingering for both notes of the slide in the first instance:



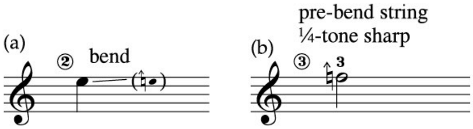
AUDIBLE GLISSANDO

An expressive glissando must be marked *gliss.* to distinguish it from the finger shift. If the second note is to be plucked, there should be no slur between the pitches:



STRING BENDING

This is used both as an expressive device and to produce microtones. The left hand remains in the same fret position but stretches a string after it is plucked, to produce an audible bending of pitch (a). By bending the string before plucking it (a 'pre-bend') the player can produce a microtone (b). Give a verbal instruction in both cases:



Right-hand techniques

Playing style of chords

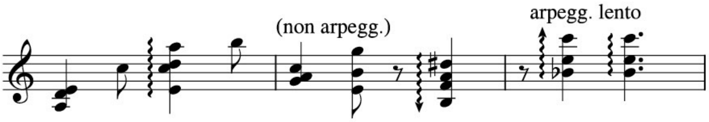
Guitarists are able to use a technique that makes chords of 5–6 notes sound un-arpeggiated: the thumb very quickly sweeps across the lowest strings while available fingers take the upper notes.

Chords that are to sound rolled should be preceded by a wavy arpeggio line or, for a sequence of chords, by the verbal instruction *arpeggiando*.

Chords that are to be played unbroken do not require an instruction *non arpegg.*, although, as guitarists have a tendency to arpeggiate chords, this can be a useful reminder not to do so. The instruction is also useful after a passage of arpeggiated chords, so that *simile* is not assumed (see following example). Vertical brackets should not be used to indicate *non arpegg.* in guitar music, as this symbol indicates that notes are to be played with the same left-hand or right-hand finger.

Arpeggiation is assumed to be in an upward (pitch) direction unless otherwise indicated by a downward arrow. An upward arrow is used subsequent to a downward arrow to indicate upward direction.

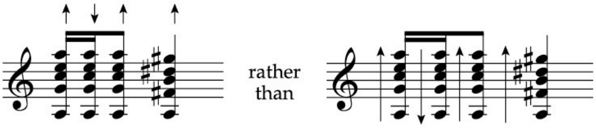
The speed of an arpeggio is indicated verbally: *arpegg. lento*, *arpegg. rapido*, etc.:



(See also *Arpeggiated chords*, p. 131.)

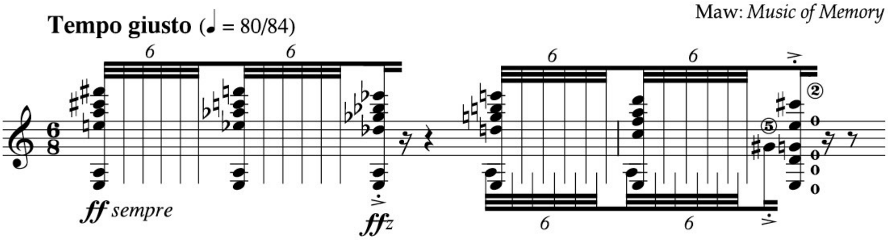
STRUMMING

An arrow indicates that the whole chord should be strummed. For more than the occasional chord, arrows are best placed above the stave:



(To place right-hand fingering for spread chords, see example *Fingering for arpeggiated chords*, p. 375.)

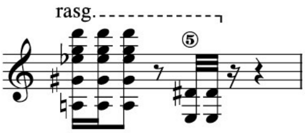
In a dense texture (e.g. highly chromatic or with complex rhythms), it is acceptable to abbreviate passages of repeated chords by using stems alone after the initial chord. Such passages may be easier to read if noteheads are reserved for changed chords, especially when chords have six notes:


Maw: *Music of Memory*

(See also *Repeated chords*, p. 231.)

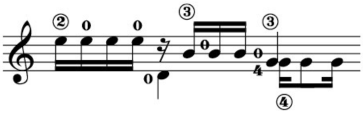
RASGUEADO

A flamenco technique for strumming with the back of the fingernails, *rasgueado* (abbrev. *rasg.*), requires a verbal instruction. If necessary, the extent of *rasgueado* may be indicated by a dotted line or else subsequently cancelled by *ord.*, *nat.* or *norm.*

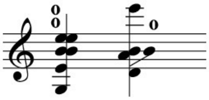


Two strings of the same pitch

The playing of alternate strings is indicated by a zero for each open string note (not – as is the convention in bowed string music – by separate stems):



When two strings are to be sounded together, notate two noteheads. It is always helpful to specify the open string(s):

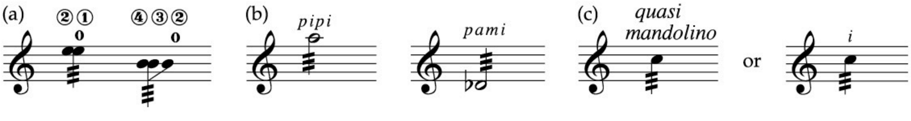


Tremolos

SINGLE-NOTE TREMOLO

Specify whether a tremolo is measured (by initially notating rhythms in full) or unmeasured (by using the tremolo sign ♩). The player decides whether to use one finger, different fingers or a plectrum, although the type of fingering may be prescribed for a special effect (see example below).

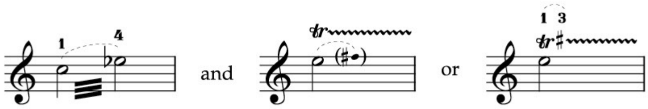
One string is used, unless additional noteheads indicate two, or even three (a). Place any special fingering above the note (b). A single-finger tremolo has a more percussive effect and is sometimes indicated *quasi mandolino* or *like a mandolin*; alternatively, indicate the required finger (c):



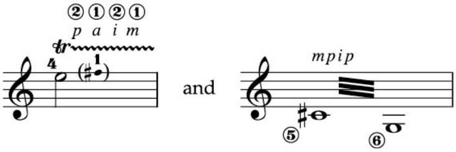
(For general tremolo notation, see *Tremolos*, p. 219.)

TRILLS AND TWO-NOTE TREMOLOS

These can be executed in two different ways. One technique is for the right hand to play the initial note and thereafter the left-hand fingers to alternate the notes. This uses the *ligado* technique (see *Slurs*, p. 377). A dotted slur between the two notes or the two fingerings indicates this:



A second technique is a cross-string trill or tremolo: the left hand holds down two notes on adjacent strings whilst the right hand rapidly trills using a prescribed combination of fingers. Indicate both right-hand fingering and the required strings. Note that a slur should not connect the two notes:



(See also *Two-note tremolos*, p. 225.)

Area of the string on which to play

To place the right hand other than in its normal position (i.e. over the soundhole), give a verbal instruction above the stave:

verbal instruction	**technique**
sul pont. (ponticello)	near the bridge
sul tasto	over the frets
flautando	play at the octave nodal point

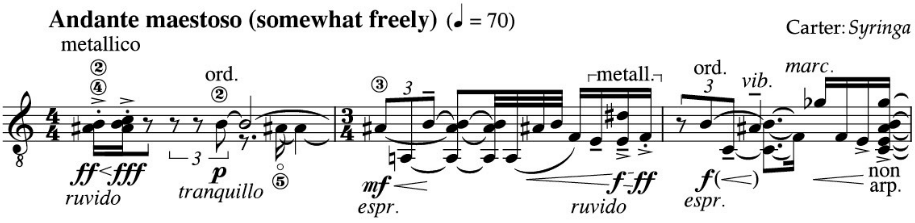
(*Flautando* gives a pure, woody sound but is not a harmonic. It may also be indicated *clarinet tone*, so called as the playing position dampens the note's harmonics to produce a clarinet-like sound.)

The instructions are cancelled by *ord.*, *nat.*, or *norm.* (terms that are used equally to cancel a non-standard technique). Alternatively, a dotted line extends for the duration of the technique (see *Technical instructions*, p. 492).

Timbral techniques

WITH FINGERS OR PLECTRUM

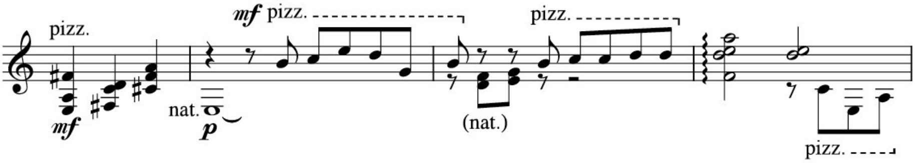
The normal method of playing is with the fingers. If the sound (or technique) of a plectrum is desired, then include the instruction *with plectrum*. It is best not to be too technically prescriptive but to describe the intended timbre instead (e.g. *percussive*, *brilliant* or *metallico*) and to leave the guitarist to choose how to play the passage. To return to normal playing, indicate *with fingers* or *ord.*, *nat.* or *norm.*:


Andante maestoso (somewhat freely) (♩ = 70)
Carter: *Syringa*
metallico
② ④
ord.
②
③ 3
metall.
ord. 3
vib.
marc.
ff<*fff*
ruvido
3
p
tranquillo
⑤
mf
espr.
f-*ff*
ruvido
f (<)
espr.
non arp.

The term *polpastrello* indicates that the player should use only the fleshy part of the finger (or, more usually, the thumb).

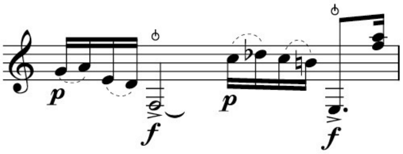
PIZZICATO

Pizzicato (also called *sons étouffés* – French, 'muffled sounds') is a technique that deliberately mutes the sound. The instruction is cancelled by *ord.*, *nat.* or *norm.*, unless a horizontal line extends for its duration:


pizz.
mf
nat.
p
mf pizz.
pizz.
(nat.)
pizz.

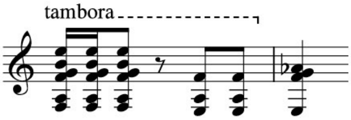
SNAP PIZZICATO

The snap pizzicato, in which the string rebounds against the fingerboard, uses the Bartók pizzicato symbol borrowed from bowed strings ⫰ or ⫯:



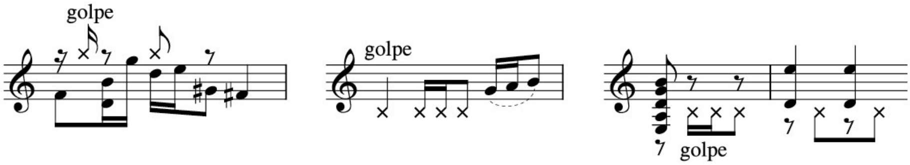
TAMBORA

Tambora (Spanish for 'snare drum') or *tamburo* (in Italian) is the technique of striking the strings next to the bridge with the side of the thumb. Follow the instruction with a dotted line indicating its duration:



GOLPE

This flamenco technique involves knocking, striking or flicking the body of the guitar with the fingers or thumb. Indicate the rhythms with crossed noteheads just outside the stave and add the instruction *golpe* (Spanish, 'strike' or 'knock'):



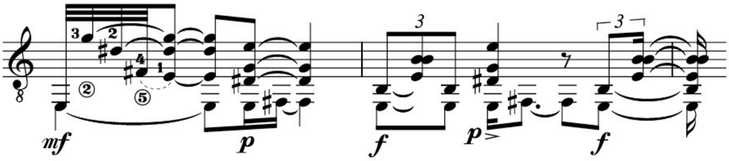
(For placing technical instructions, see *Technical instructions*, p. 492.)

Give a verbal instruction if the player is required to strike a particular part of the instrument or in a specific way. In Henze's *Royal Winter Music*, a diagram at the beginning of the piece differentiates three specific areas to be struck (labelled A, B, C). Each area is designated a notehead in a space on a two-line stave. (Similar notation differentiates areas to be struck on other resonant instruments: see examples under *Harp: Percussive sounds on body of instrument*, p. 369.)

Sustaining and damping

When certain notes should specifically be left to vibrate (*laissez vibrer*), notate the full value of the sustained notes; this serves as a useful reminder to keep these notes held down:

Tippett: *The Blue Guitar*

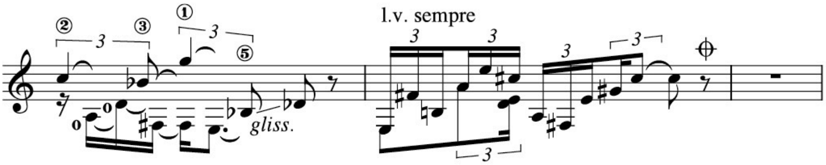


Notating the precise duration of sustained notes counterbalances the guitarist's natural tendency to let the strings ring on: the player must damp the strings to observe the rests.

Where notation of sustained notes is cumbersome, place an open tie after each note (see example below, first bar). Where there is to be no damping of a figure or in a passage, give a general instruction: *l.v. sempre*.

(See also *Open ties*, p. 72.)

An instruction to damp all strings may be indicated by the damping symbol ⊕, used in harp notation. Place the symbol above the stave. This symbol should be reserved to countermand an *l.v. sempre* instruction (bar 2); otherwise damping will be executed with the rests (bar 1):



Individual notes or chords that should be damped can take staccato dots (see Carter extract, p. 382) or else a verbal instruction such as *secco*.

Harmonics

The guitar can produce both natural and artificial harmonics. Both types may be written as diamond noteheads. Minims and semibreves take open noteheads, while shorter values take black noteheads.

The notation of harmonics is not standardized and so it is essential to qualify the notation used. Since guitar music sounds an octave lower than written, notation of harmonics should also relate to the written pitch of guitar music and not to concert pitch. This includes the notation of qualifying sounding pitches.

Notation options

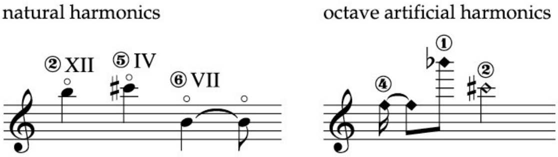
There are several different approaches to writing harmonics.

HARMONICS AS DIAMOND NOTES

Many composers write all harmonics as diamond notes at the pitch at which they will sound (i.e. as if they were ordinary fingered pitches) without distinguishing between natural and artificial harmonics. This leaves the player free to work out the best way to play each harmonic.

CONTRASTING NOTEHEADS FOR NATURAL AND ARTIFICIAL HARMONICS

Another approach is to differentiate the notation of natural and artificial harmonics. Some composers (e.g. Carter in *Changes*) use an ordinary notehead with a small circle for natural harmonics and a diamond notehead for artificial harmonics, writing all harmonics at the pitch at which they sound:



Other composers have used diamond notes for natural harmonics and ordinary notes with circles for artificial harmonics (e.g. Walton in *Five Bagatelles*).

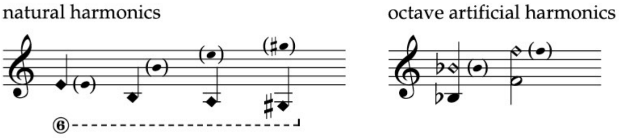
DIAMOND NOTES AT FINGERED PITCH

Yet another approach (favoured by, for example, Kagel and Lachenmann) is to place a diamond at the fingered pitch (the fret at which the left hand touches the node of the harmonic). This notation equates to finger-pitch indication for the natural harmonics of bowed strings (see *Alternative notation for harmonics 3–6*, p. 416).

Natural harmonics take black diamond notes for crotchets and shorter values; artificial harmonics use open diamonds for all note-values. The octave artificial harmonic is written with the stopped pitch as an ordinary note below the diamond. (Bowed strings are notated using the same principle: see *Artificial harmonics*, p. 420.)

Except for the octave harmonic, the fingered pitch produces a completely different resultant pitch. The qualifying sounding pitch must be given in brackets:

Harmonics notated as finger positions



(The notation of artificial harmonics other than the octave always uses this form of notation: see *Other artificial harmonics*, p. 388.)

RECOMMENDED NOTATION

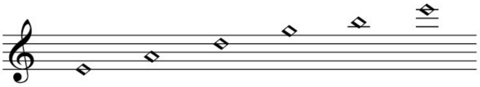
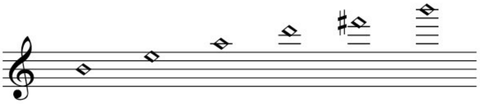
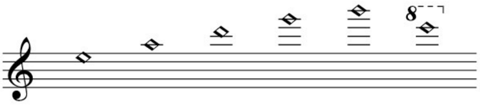
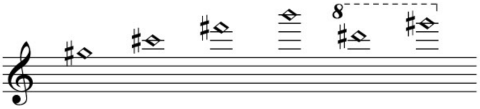
If the composer knows specifically how to achieve the sound required and wants to prescribe this, it is helpful to differentiate the notation of natural from artificial harmonics.

Diamond notes are recommended for writing harmonics rather than normal notes with small circles above, since the circle can easily be confused with the open string zero. All the following examples use diamond notes for both natural and artificial harmonics.

Natural harmonics

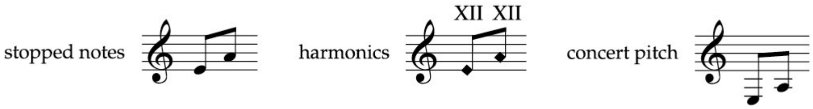
To produce a natural harmonic, the hand (usually the left) touches the string at one of the nodes (a specific fret) above the open string (the fundamental) while the right hand plucks the string. The position of the node is indicated by fret numeral. The available harmonics are:

TABLE 1: Available natural harmonics

harmonic	sounding above open string	touch at fret	string ⑥ ⑤ ④ ③ ② ①
2nd	one octave	XII	
3rd	one octave and a fifth	VII or XIX	
4th	two octaves	V	
5th	two octaves and a major third	IV or IX or XVI	

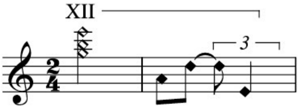
(Notes higher than the fifth harmonic are available but less secure.)

Write the harmonic at its sounding pitch. The fingered and the sounding (guitar) pitch are the same for the octave harmonic (as they are for bowed strings):

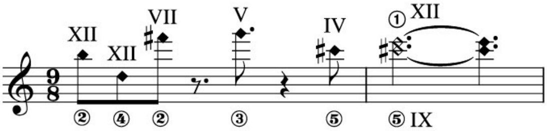


Because fingered and sounding pitches of the other natural harmonics differ, always state the written pitches of natural harmonics: e.g. ‘natural harmonics are notated at sounding pitch (for the score reader, an octave above concert pitch, in the manner of the rest of the guitar part)’.

Fret indications are essential, as they show where the left hand must touch the string in order to produce the indicated note:



The exclusive use of the octave harmonic (as in the previous example) does not require string number indication; all other harmonics do. When different natural harmonics are used, it is helpful to mark string numbers for the octave harmonics as well (first two notes, below):



Artificial harmonics

OCTAVE HARMONICS

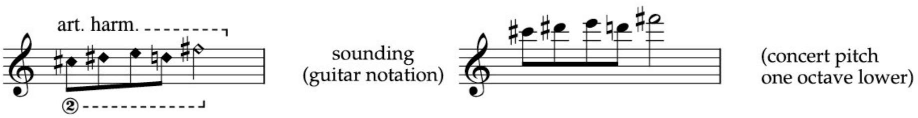
Any note can be produced an octave higher as an artificial harmonic. The left hand stops the string to create a fundamental; the right hand touches the string an octave higher with the index finger, while plucking with the thumb or another finger.

Some players prefer to have artificial harmonics notated as they would sound for the player, but others find this confusing since the guitarist must transpose the notes down an octave for the correct fret note. The recommended notation is to write a diamond notehead at the stopped pitch (i.e. the fingered pitch for the left hand).

Because of these different practices, it is essential to qualify the written pitches of artificial harmonics: e.g. 'artificial harmonics are written at fingered pitch and sound an octave higher'.

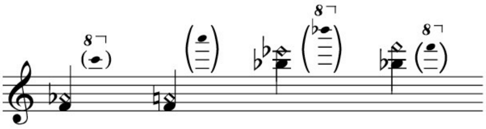
Label the harmonic *art.* or *art. harm.* to distinguish it from the natural harmonic. A subsequent natural harmonic may be labelled *nat.* if required (see *Harmonics combined with ordinary notes*, below). Some editions add an octave indication after the instruction: *art. harm. 8va* to indicate that the harmonic sounds an octave higher than written. This is unnecessary, as the octave harmonic is assumed unless otherwise specified (see *Other artificial harmonics*, p. 388).

Notate the stopped note, using ledger lines as necessary (do not use octave signs, as these may be confused with *art. harm. 8va* labelling):



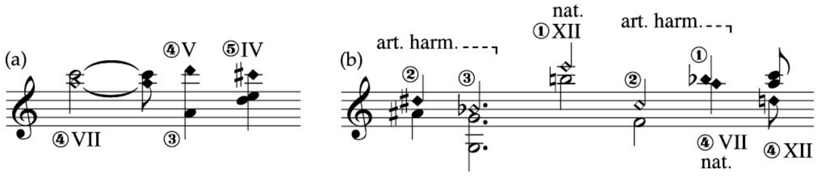
OTHER ARTIFICIAL HARMONICS

Artificial harmonics can also be produced at other intervals above the fundamental. The right hand may touch the string a minor or major third, perfect fourth or perfect fifth above the stopped note. The resultant intervals are the same as those of a bowed string instrument and should be written in the same way (see *Artificial harmonics*, p. 420). Use an ordinary notehead for the stopped note, and an open diamond note for the node (the right-hand position). Indicate the sounding pitch in brackets after the fingered pitches:



Harmonics combined with ordinary notes

Natural harmonics may be combined onto a single stem with ordinary stopped notes (a). For all harmonics, however, it is clearer to use separate stems (this is essential for artificial harmonics) so that a chord is not confused with artificial harmonic fingering (b):

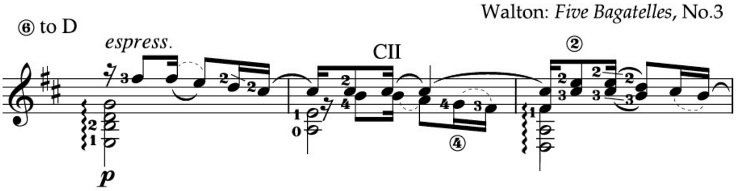


Scordatura

The re-tuning of one or more strings (‘*scordatura*’) is frequently used in guitar music, often to produce specific natural harmonics or to alter the instrument’s basic resonance.

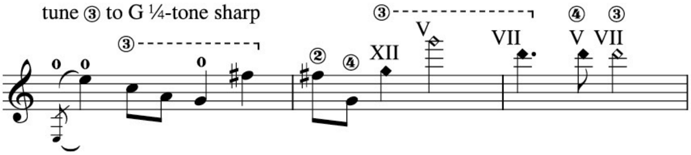
Indicate the different tunings above the first stave:

Walton: *Five Bagatelles*, No.3



Notate the strings at sounding pitch. Only if there are multiple string retunings is it more helpful for the guitarist to read fingered pitches and the part to be transposed. If such transposition is used, it is essential to specify strings precisely to ensure that the required pitches result (the Kurtág extract, p. 425, illustrates this procedure).

For scordatura using microtonal tuning, it is unnecessary to include the resultant microtones once the unconventional tuning has been indicated, provided that the scordatura string is always labelled:



14

Strings

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Clefs

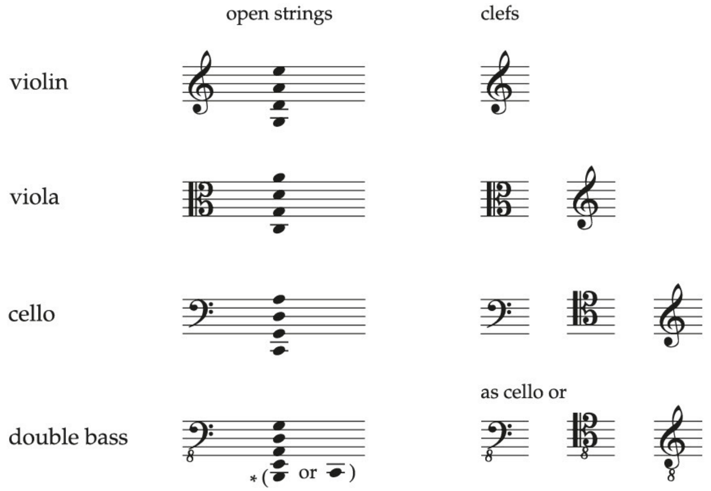
Various clefs are used in music for strings. The violin appears in the treble clef only. The viola appears in the alto clef primarily, although higher notes may move into the treble clef. Cello and double bass appear in the bass clef primarily, with the tenor clef for a higher range and the treble clef for even higher notes. (The practice of using the treble clef in cello parts to sound an octave lower than written is obsolete.)

For viola, cello and double bass, use the lowest-pitched clef where possible: allow two or three ledger lines above the stave before moving to a higher-pitched clef. In the treble and tenor clefs, notes occurring towards the bottom of the stave, or below it, are difficult to read (the player is unaccustomed to reading them); such notes should move into a lower-pitched clef.

The double bass is written an octave higher than sounding: this transposition avoids ledger lines below the bass clef. The figure ‘8’ may be written below its clefs; this is particularly useful to clarify the sounding pitches of harmonics (see *Double bass harmonics*, p. 423).

For any of the stringed instruments, octave signs may be used in the treble clef for very high notes (five ledger lines or more) to avoid multiple ledger lines. No other octave signs are acceptable.

TABLE 1: Open strings and clefs



* available on a 5-string bass, or a 4-string bass fitted with an extension mechanism

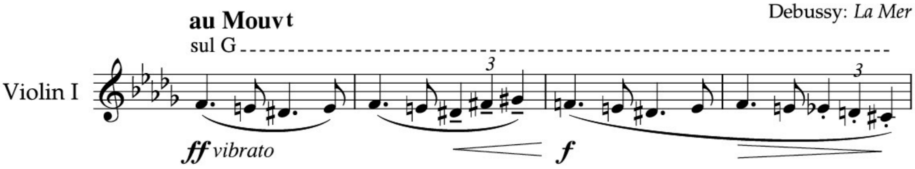
(See also *Using ledger lines or octave signs*, p. 32, and *Changing clef*, p. 7.)

String designation

The strings are labelled either by pitch letter (E, A, D, G, etc.) or roman numeral: I = highest, IV = lowest (V = lowest for a 5-string double bass).

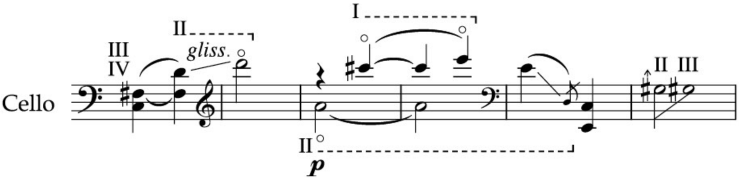
A passage on a given string that is designated a pitch letter should be preceded by *sul* (Italian, 'on'), e.g. *sul G* ('on the G string'). The use of *sul* is unnecessary with roman numerals (only in elementary educational material is a roman numeral used to refer to left-hand position on the fingerboard). The extended use of a specified string may be indicated *IV sempre* or *sul G sempre*, or its precise length defined by a dotted line:

Debussy: *La Mer*



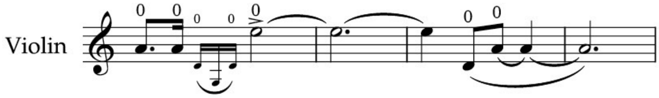
(If necessary an end bracket may indicate where to stop playing on the specified string. In the Debussy extract above the subsequent bars can be played only on the G string, rendering an end bracket redundant.)

A string should be specified only in order to achieve a particular timbre or to indicate how to play a technically complex passage. Place the string designation above the stave; only where there is a lower line with a separate stem does the designation go below the stave:

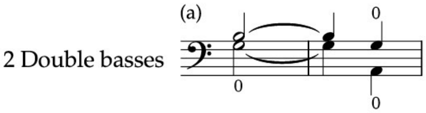


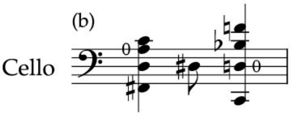
Open strings

A zero indicates an open string. (An open string is not indicated by a string number.) The lowest open string does not need an open-string indication since this pitch cannot be played in any other way. Each repeated open-string note requires a zero. It is optional to repeat the zero on a tied note (although in certain circumstances it is useful to do so, to confirm that the pitch should not become stopped on a lower string subsequently). Place the zero above the stave:



The zero goes below the stave for the lower of two parts sharing a stave (a). Place the zero beside a note if it is necessary to indicate that a middle note of a chord is an open string (b):



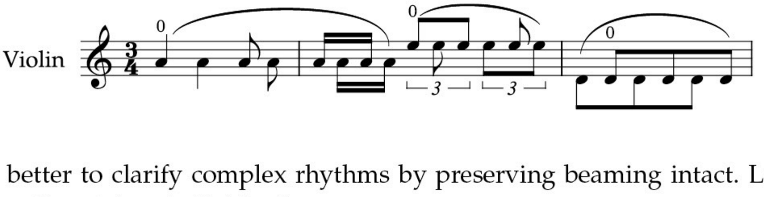


The zero also goes below the stave for the lower note of a double-stopped chord (see *One open-string note*, p. 397; also, *Multiple-stopping with open strings*, p. 399).

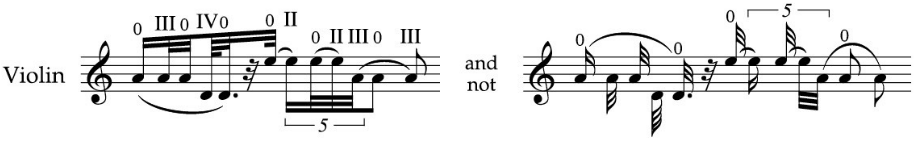
Alternating the same pitch on two or more strings

'Bariolage' is the term used to describe the effect of achieving contrasting tone colour in which one string is open, the other stopped.

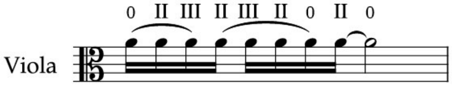
Unless rhythms are particularly complicated, it is usual to indicate alternating strings with opposite stem directions. The lower string takes down-stems. The upper string is the open-string pitch: add a zero to the first up-stemmed note to clarify that this is the open-string note. Both stems may take beams for the same beat (bar 2) or even a whole bar (bar 3), provided this is the correct beaming for an equivalent single-stemmed part. (This is an acceptable convention even though each beam does not join all the notes of the beat.)



It is better to clarify complex rhythms by preserving beaming intact. Label alternating strings individually:

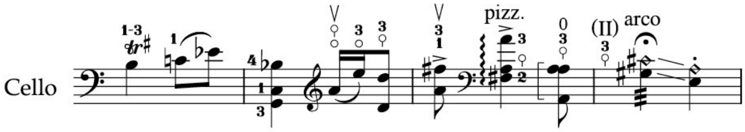


Label the alternation of more than two strings individually:



Fingering

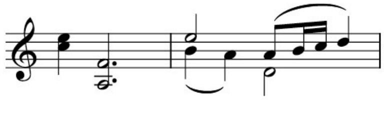
In general, fingering is a matter of personal preference and should be included (if at all) only in solo repertoire and educational music. Place fingering above the stave, above articulation and harmonic symbols and below a bowing sign or string indication. Fingering for chords may be stacked alongside (before them, where room), so as to be closer to the relevant notes. The symbol ♀ (and not the snap pizzicato symbol ⚲, see p. 411) indicates thumb position for cello and double bass:



(See also *Positioning symbols*, p. 427.)

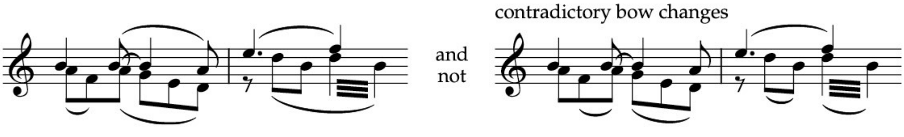
Double-stopping

The bow can sustain two notes at once on adjacent strings. The two parts are written on a single stave except in very exceptional circumstances (see *Use of two staves*, p. 399). Two identical note-values share a stem. When the two strings have different note-values, use separate stems. Slur a moving part for the length of the bow stroke required by the longer duration:

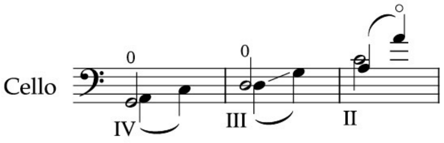


(For the relationship between slurs and bow strokes, see *Combined-note bowing*, p. 401.)

In two-part writing for a single instrument, the length of bow strokes must coincide between the parts. Each part requires an individual slur:



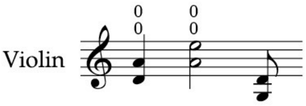
The upper string takes up-stems, even if the lower string has higher pitches:



Double-stopping with open strings

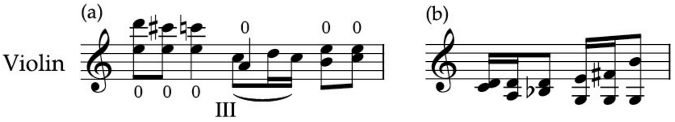
BOTH NOTES ON OPEN STRINGS

Place a zero for each note above the stave. When the lowest two open strings form a chord they do not need zeros, as there is no other way to play them:

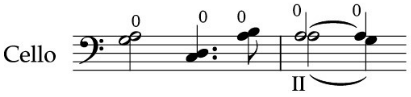


ONE OPEN-STRING NOTE

It is necessary to add an open-string indication only when a chord could otherwise be played with both notes stopped. For single-stemmed chords, place the zero above or below the stave, according to whether the open string is the higher or the lower note. In a double-stemmed chord, the zero goes to the end of the open string's stem ((a), second beat). When a chord cannot be played in any way other than with one open string, the zero is redundant (b):

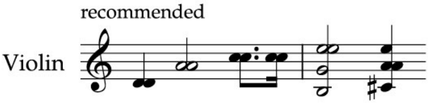


When a chord contains adjacent notes, place the zero above or below the correct notehead:

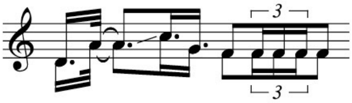


UNISON DOUBLE-STOPPING

A unison double-stop is best written with two noteheads. Two noteheads clarify that two strings are played:

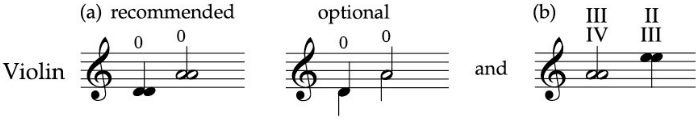


The use of two stems to one notehead usually indicates a unison in a part divided between players (each player plays the note on only one string). Only where the notation of two noteheads would be cumbersome should two stems be used to indicate a unison double-stop:



(In two-part writing for a single instrument, two stems should be used for a unison of two voices, since two noteheads would imply two strings.)

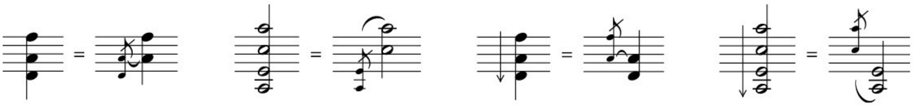
Where a unison is at an open-string pitch, one of the notes will be played as an open string (as in (a) below), unless there is an alternative instruction (b). An open-string zero may be added where an open string is to be used, although the open-string indications in examples (a) are not essential:



(See also *Multiple-stopping with open strings*, opposite.)

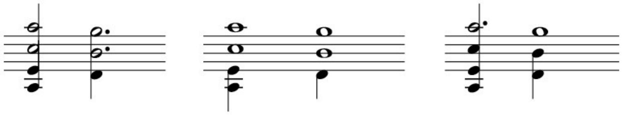
Triple- and quadruple-stopping

Three- and four-note chords are spread by bowing the lower two notes first, unless otherwise indicated by a downward arrow. The convention is to hold the final pair of notes (the speed at which the chords are spread and whether the first notes are placed on or before the beat depends on context):

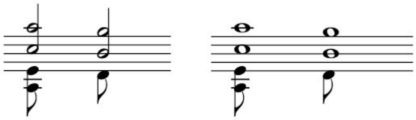


It is equally acceptable to use grace notes (as above) to show that arpeggiation is required: otherwise notes will be sounded as simultaneously as possible.

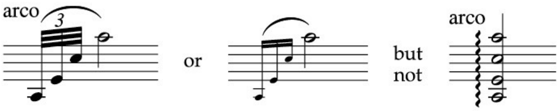
One or more of the notes that starts a sustained chord may take shorter note-values. Crotchet noteheads can be joined to the same stem as minims or dotted minims. To indicate that only one note is to be sustained throughout, give full duration to this note alone (see last example):



Quaver notes take opposite stem directions, though complementary rests are not needed:

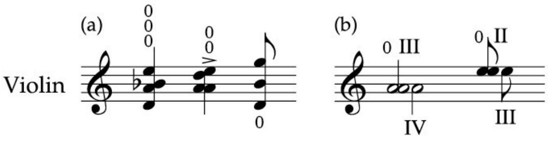


When each note is to be sounded separately, notate each as such, either in a prescribed rhythm or as a group of grace notes. Reserve the arpeggio sign for pizzicato chords: its use on a bowed chord creates an ambiguity as to how many notes should be sustained at the top of the chord:



Multiple-stopping with open strings

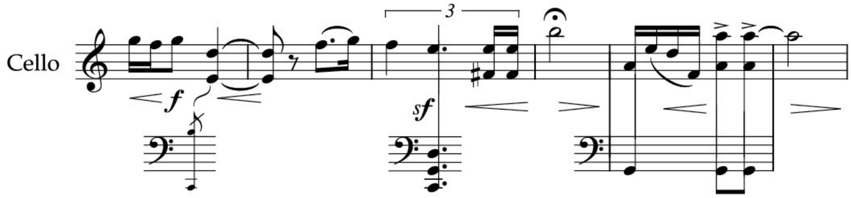
Open-string pitches may be indicated when it would otherwise be possible to play a chord with some open-string notes stopped (a). To notate a unison triple-stop, assign a notehead for each string, together with string indication (b):



Use of two staves

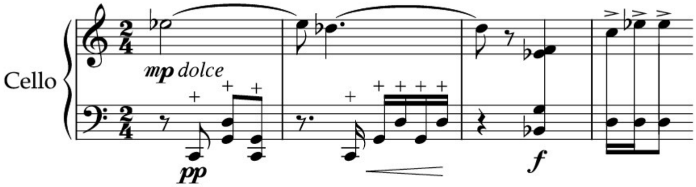
Widely spaced intervals for cello and double bass

Two staves facilitate the simultaneous use of the treble and bass clefs for chords or passages with widely spaced intervals. For the occasional chord, the second stave need be present only for the beats or bars that contain the wide intervals. Allocate all other notation, including rests, to the main stave only:



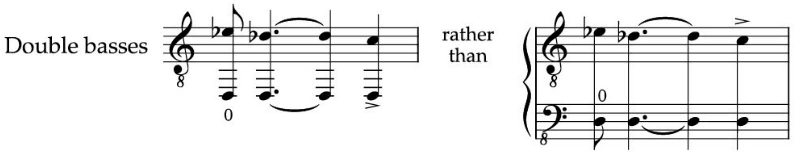
(If the freestanding stave sections – as in the example above – look too 'floating', attach them to the nearest barline.)

When the two staves are needed more frequently, allocate rests to both staves (dynamics, too, if required) and bar the staves together:



ORCHESTRAL CONTEXT

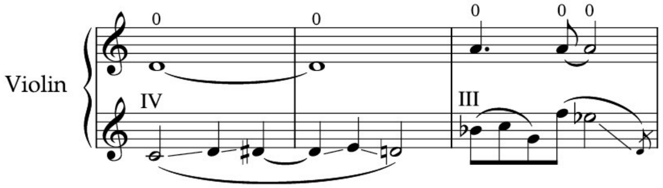
In an orchestral part, it is clearer to keep non-divided chords on one stave, provided it is feasible to read the ledger lines. A part on two staves will look as if it is to be divided between players:



(Such ledger lines below a stave should be reserved for these exceptional cases, as players are unused to reading them.)

To clarify part-writing

In extreme cases two staves may be used to clarify part-writing, e.g. when pitches overlap on different strings:



Note that a curly brace should always be used to indicate that one instrument is using two staves. A square bracket joins staves for different players (see *Score brackets and barlines*, p. 514).

Bowing definitions

The term for a bowed note is *arco*. A note is assumed to be bowed unless indicated to be plucked: *pizzicato*. The term *arco* cancels *pizzicato*. These terms appear in roman type in the music (see *Text typefaces in the music*, p. 492).

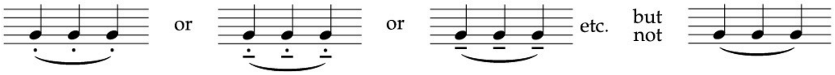
Combined-note bowing

A slur indicates notes to be played in one bow stroke. A slur in string music should always indicate bowing: one slur = one bow stroke.

It is best to avoid adding phrase marks to string writing as these will be confused with bowing slurs (see also *Legato bow strokes*, p. 402).

Notes that require a degree of separation within one bow stroke should take individual articulation marks, such as staccato dots (see *Slurred staccato*, p. 402).

The notes of a pitch repeated in the same bow stroke must be separately articulated. Therefore assign articulation marks for the notes within the bowing slur:



(See also *Portato (Louré bowing)*, p. 403.)

Separate-note bowing

This is known as *détaché* bowing, although it is not necessarily the case that each note is detached: the bowing may be either *legato* or *non legato* (see p. 402). Skilled players can join successive separate-note bow strokes without a break in the sound.

The term *détaché* indicates separate-note bowing after a passage of combined-note bowing.

Legato bow strokes

Legato playing – keeping the bow on the string between strokes – should be indicated by the verbal instruction *legato*. It is better to use this indication rather than to add phrase marks, to avoid confusion between phrasing and bowing.

An exception may be made if bowing is to be non-synchronous within an orchestral section. In this case phrasing may be given, together with an indication that bow changes are not synchronized (see *Unsynchronized bow changes*, p. 405).

Non-legato bow strokes

These may be marked *non legato* or with staccato dots. At a certain speed the natural spring of the bow causes it to bounce from the string between strokes. The player may choose to articulate the strokes on the string (i.e. without the bow leaving the string) or off the string (see below).

Bowing techniques

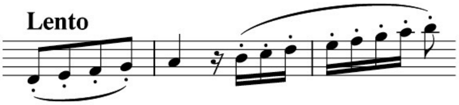
Except for *legato* and *non legato*, there is no general consensus about the exact interpretation of terms for various bowing techniques. It is more important to give a *legato* or *non legato* instruction than to prescribe a specific technique, since the player will choose the appropriate way of interpreting the musical instruction. However, the following on- and off-the-string bowings may be indicated as shown below.

On-the-string bowing

On-the-string bowing is assumed unless there is a contrary instruction. The term *sulla corda* ('on the string') cancels off-the-string playing (see *Off-the-string bowing*, opposite).

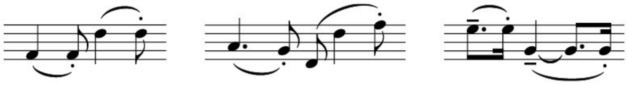
SLURRED STACCATO

Staccato marks placed within a slur indicate that the bow stops between notes:



(At a fast tempo such figures would have to be played so that the bow bounces off the string between notes.)

Hooked bowing: this is a technique in which the bow stops before the second note in order to articulate it. It is the first note, rather than the second, that is shortened, although the articulation marks suggest the opposite:



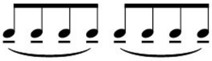
MARTELLATO

Martellato (in Italian) or *martelé* (in French; both abbrev. *mart.*) is an on-the-string staccato in which each stroke sounds hammered and where there is an audible gap between each note.

To indicate that the bow should stay on the string, always include the instruction *martellato* (otherwise the player may choose to bounce the bow) and add staccato dots or wedges, with or without accents (see example, p. 603).

PORTATO (LOURÉ BOWING)

Two or more notes per bow stroke are slightly separated by leaning on the start of each note. Swift and full-length bow strokes produce an intense *cantabile*. The notation is standard and does not require an explicit instruction. Each note takes a tenuto line, and a bowing slur indicates the number of notes per bow stroke:

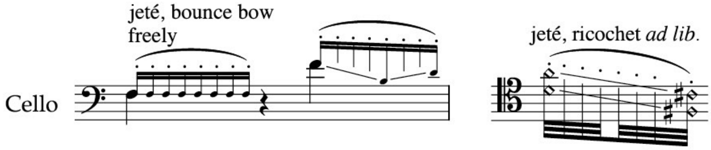


Off-the-string bowing

The bow bounces from the string between each note, to give a pronounced staccato. Staccato dots, with slurs for bow strokes as appropriate, are the standard notation. It is best to prescribe *off the string* and leave the player to use the appropriate technique. The more specific terms for off-the-string bowing – *spiccato* and *saltato* (or *saltando*) – are open to different interpretations by the various schools of string playing.

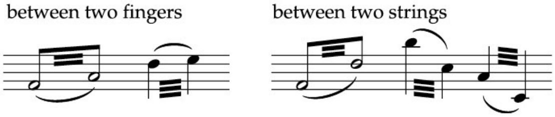
Prescribe *gettato* (Italian, 'thrown') or *jeté* (in French) for a ricochet effect. The bow is dropped on the string and allowed to bounce of its own accord, with the resulting ricochet capturing as many notes as can be articulated in the rebounding bow. Notate a ricochet as a group of staccato notes within a slur.

The use of grace notes indicates that the rhythm is the result of the bounced bow. Otherwise short note-values may be accompanied by an *ad lib.* instruction to suggest the flexible rhythm:

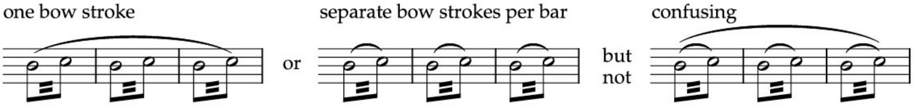

jeté, bounce bow
freely
Cello
jeté, ricochet *ad lib.*

Two-note tremolos

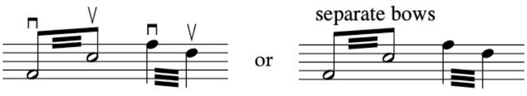
When a tremolo between two notes is played in one bow stroke, place a slur between the two notes. The tremolo will be either between two fingers on one string ('the finger tremolo'), or between two strings ('the bow and finger tremolo'):


between two fingers
between two strings

When tremolo note-values are repeated within one bow stroke, use a single slur. A slur should always indicate the length of the bow stroke (there should not be separate slurs for each two-note tremolo unless each has a separate bow stroke). To use two sets of slurs is confusing, as it is unclear whether a second set functions as bowing or phrasing:


one bow stroke
or
separate bow strokes per bar
but
not
confusing

When a two-note tremolo is articulated by separate bow strokes, there is a change of bow and finger, or bow and string, for each note. This technique is much less commonly used than the slurred tremolo, so clarify that bow changes are required:


or
separate bows

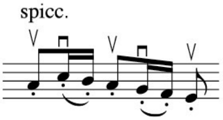
(See also *Two-note tremolos*, p. 225.)

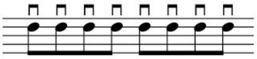
Bowing marks

Down-bow: travelling towards the point ⊓
Up-bow: travelling towards the heel V

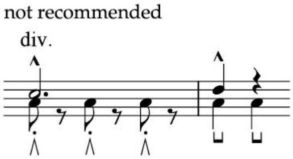
Bow direction choices should be left to the player, since either direction can very often achieve the required effect (especially as regards accentuation). Indicate the relevant articulation, and leave the player to find the best bowing to achieve this. Bowing may be prescribed for educational music but should otherwise be reserved for very special techniques, e.g. where the bowing contradicts what would normally be used (see following example).

Place a bowing mark over the stave, aligned with the first note of the bow stroke and above all other markings (see *Positioning symbols*, p. 427):





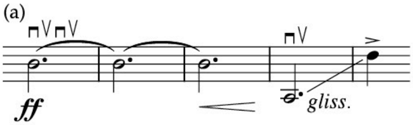
Where two instruments share a stave in a score, the bowing symbols for a lower part are inverted below the stave. However, since the up-bow sign can be mistaken for an accent, it is best not to place two parts on one stave where bowing is to be included – and most certainly not if the score is to be played from:



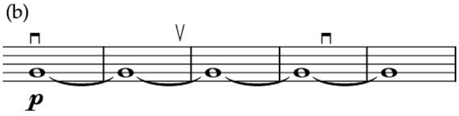
UNSYNCHRONIZED BOW CHANGES

These may be indicated by an instruction such as *change bow freely*. Alternatively, for a single held duration, group bow-change indications above the first note (a), or spread them over the course of the held pitch (b):

(a)



(b)



Specific section of the bow

The player will always find the section of the bow where a required effect works best. The specifications *at the heel* (Italian: *al tallone*) and *at the point* (Italian: *alla punta*) should be reserved for an effect that demands an unconventional bow placing or when the player would not necessarily play exclusively in that part of the bow.

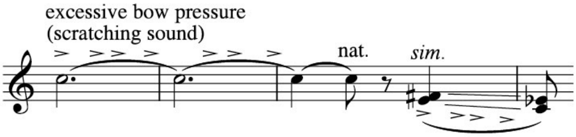
Bow pressure

FLAUTANDO

Flautando ('flute-like') indicates a fast and lightly drawn bow that produces a transparent or flute-like sound. *Ord.*, *nat.*, or *norm.* may cancel the term, if required.

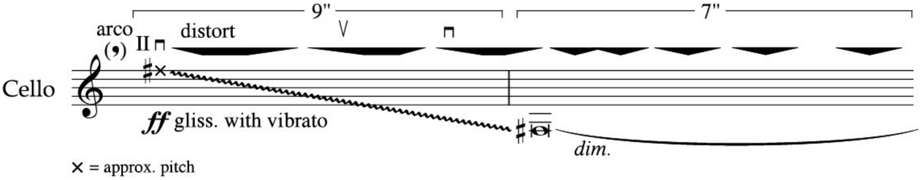
EXCESSIVE PRESSURE

The bow sticks to, or scratches, the string to produce predominantly extraneous noises and overtones. A verbal instruction should explain the technique, such as 'press bow firmly on string to produce scratching noise'. No special notation is required although a series of accents may be added after the note to convey the sense of uneven sound production:



A filled-in wedge placed above the stave indicates the gradation of bow pressure in a graphic way:

Harvey: *Advaya*



(See also *Symbols to replace repeated techniques*, p. 494.)

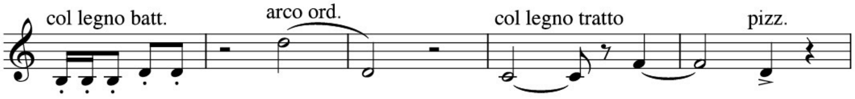
With the wood of the bow

The term *col legno battuto* (abbrev. *col legno batt./c.l. batt./c.l.b.*) indicates tapping the string with the wood of the bow. It is often abbreviated to *col legno*. This technique is usually accompanied by staccato dots or wedges, and produces a staccato.

The term *col legno tratto* (abbrev. *c.l.t.*) indicates drawing the wood of the bow across the string.

The term *poco col legno* or *½ col legno* indicates using both the hair and the wood of the bow on the string simultaneously.

A return to normal bowing is indicated *arco ord.*, *arco nat.*, or *arco norm.* (*ord.*, *nat.*, or *norm.*, without the instruction *arco*, is less clear – see *Cancelling instructions*, p. 426):



Area of the string on which to bow

NEAR THE BRIDGE

This is indicated *sul ponticello* (abbrev. *sul pont./s.p./pont.*). Although this means literally 'on the bridge', the bow moves close to but does not touch the bridge (but see *Bowing areas producing sounds of indefinite pitch*, p. 408).

The following terms indicate the progression of the bow towards the bridge:

verbal instruction	**technique**
poco sul pont.	moving towards the bridge
sul pont.	↓
molto sul pont.	as close to the bridge as possible

(See also *On the bridge*, p. 408.)

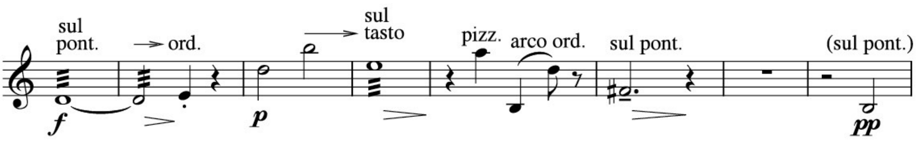
OVER THE FINGERBOARD

This is indicated *sul tasto* (abbrev. *s.t./tasto*). It is not always necessary to cancel this instruction since the bow must move further from the fingerboard for any dynamic other than very soft.

Moving bow position on the string

An arrow indicates moving the bow from one area of the string to another. Trim the length of the arrow to reflect the duration of this transition (see following two examples).

A non-standard bow position should be either confirmed in brackets at each new entry (see last bar, below) or cancelled by *ord.*, *nat.* or *norm.* for the following *arco* note – bar 5 (a pizzicato note is assumed to be played in its normal position unless otherwise indicated):



Bowing areas producing sounds of indefinite pitch

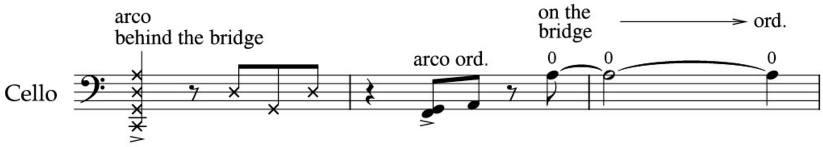
ON THE BRIDGE

This is indicated *arco on the bridge*. Italian musicians use the grammatically correct term *al ponticello* or, simply, *ponticello* to mean 'near the bridge', and *sul ponticello* or *sopra il ponticello* for playing on the bridge. Whichever terms are used, it is helpful to clarify the technique with a performance instruction.

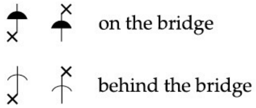
BEHIND THE BRIDGE

Indicate this *arco/pizz. behind the bridge* (Italian: *arco/pizz. dietro al pont.*).

Use crossed noteheads at the relevant open-string pitches to distinguish these indeterminate sounds from prescribed pitches:



The following symbols may be attached to the relevant stems and adopted for repeated use (to avoid copious instructions), as long as they are defined at their first appearance. The symbols reflect the curved shape of the bridge:

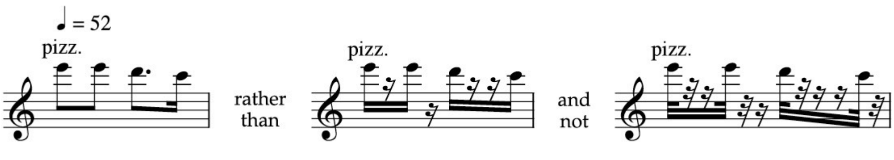


Pizzicato

A plucked string is indicated by the abbreviation *pizz.*

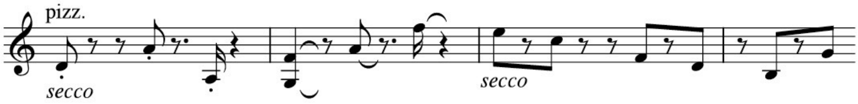
Length of pizzicato notes

Pizzicato notes should take convenient note-values. Plucked notes higher up a string that cannot be sustained beyond a brief duration should not take long note-values. Conversely, do not imitate the brevity of such notes by using very short note-values that make the rhythms difficult to read:



Use staccato dots only to indicate that pizzicato notes are to be shorter than their natural resonance and must be damped (it is useful to add *secco* ('dry') at their first appearance, for clarity – see bar 1, below). A passage may be labelled *secco* when pizzicato notes are to be damped as indicated by the rests (bars 3–4).

A *laissez vibrer* tie indicates that the note should be sustained for as long as possible (i.e. a stopped note to be sustained with vibrato or an open string undamped):



Pizzicato chords

NOTES PLUCKED SIMULTANEOUSLY

To indicate this, place a vertical square bracket [in front of individual chords. (Use the indication *sim.* for successive chords or passages.) Alternatively, give the instruction *non arpeggiando* (abbrev. *non arpegg./non. arp.*).

ARPEGGIATED CHORDS

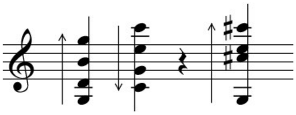
Place the standard wavy arpeggio line in front of individual arpeggiated chords; for a passage, use *arpeggiando* (abbrev. *arpegg./arp.*; see *Arpeggiated chords*, p. 131).

Strumming

INDIVIDUAL CHORDS

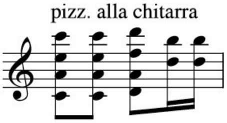
A finger strums across the strings as fast as possible so that the notes of the chord sound almost simultaneously. Depending on context, chords that have neither an arpeggio sign nor a vertical bracket may well be strummed, especially for a chord of medium to loud dynamic.

Place a straight arrow in front of a chord to show specifically that a chord should be strummed (as opposed to either being divided between players or else arpeggiated). Use a downward arrow to show that the strum is from the top string down; an upward arrow indicates the opposite direction:

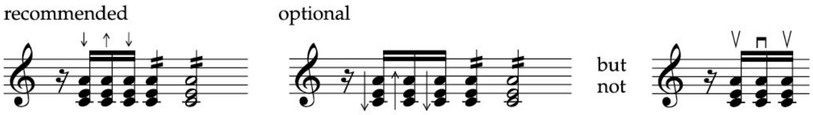


MEASURED RHYTHMS

Pizz. alla chitarra or *quasi chitarra* ('plucked like a guitar') indicates that repeated rhythms on one or more strings are strummed in both directions – backwards and forwards like a guitar (to some composers this indication also instructs violin or viola players to hold their instruments like a guitar, but this must be the decision of the individual player):



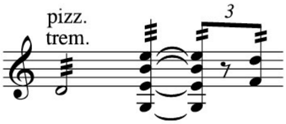
Normally there is no need to specify chord direction: chords on strong beats are strummed from the bottom string upwards. The player will work out the appropriate directions for each chord. However, if it is useful to do so, indicate directions with vertical arrows either above or before the chord. Up- and down-bow symbols should not be used for strumming, since they are needlessly ambiguous, and the direction of the strumming is confusing for cello and bass players:



Note that it is clearest if an arrow always refers to direction of pitch. If the arrow has another definition, then an instruction must clarify this. (For example, a downward arrow might indicate a downward physical hand movement across the strings, towards the floor for violin and viola, i.e. playing from the bottom string upwards. This would be the opposite of the actual intention.)

Pizzicato tremolo

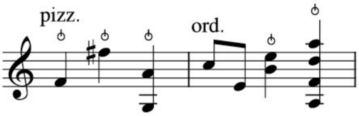
An unmeasured pizzicato tremolo may be played by using more than one finger in the same direction to achieve a sustained sound. It is written as an ordinary tremolo and indicated *pizz. trem.*:



Snap pizzicato (Bartók pizzicato)

The string is pulled away sufficiently from the fingerboard for the string to rebound off it when released. The symbol ⦶ was invented by Bartók for this technique. It can also be used inverted (see table under *Cancelling instructions*, p. 426). The symbol ♀ represents thumb position for cello and double bass and should not be used for snap pizzicato.

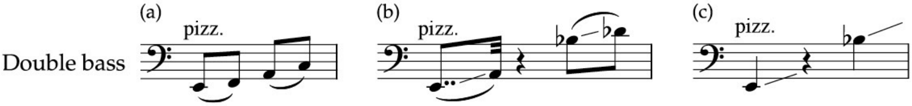
Place the snap pizzicato symbol directly above each note to which it applies. It is advisable to cancel the symbol with *ord.*, *nat.*, or *norm.*, or *pizz. ord.*, etc., so that there is no ambiguity as to whether a further symbol might simply have been omitted:



Slurred pizzicato

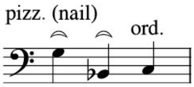
A slur indicates that notes are to be played by the left hand after the string is plucked just once (a). Add a verbal instruction for clarification such as 'within pizzicato passages, notes included in the slur indicate left-hand fingering only'. This technique is often used with a glissando ((b) below; see also Bartók extract, p. 143).

Since the sound dies away quickly, it is not always necessary to notate a finishing pitch for the glissando (c):



Other types of pizzicato

To notate a pizzicato with the fingernail, use the fingernail sign ⌒ or ⌣ (as used in harp notation) and place it over each respective note. For clarity, add the instruction *fingernail* or *nail* at its first appearance:

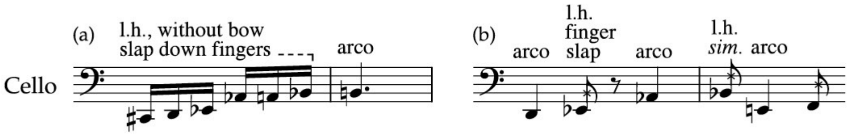


Further variations of pizzicato are best given a verbal instruction where they arise, although symbols may be adopted for repeated use as long as an initial verbal instruction accompanies each. Whilst common symbols have not evolved, Ligeti's scores are generally regarded as a benchmark for such techniques (see, for example, *Apparitions*, and the Second String Quartet).

Left-hand finger work

The finger slap

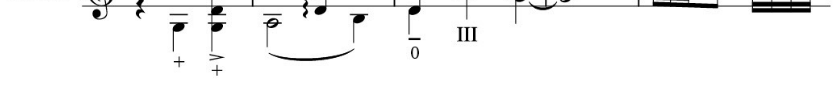
The left hand may finger pitches on the string without the right hand bowing or plucking. State in an instruction (such as *finger percussion*, or as below) that the fingering is performed without the bow (a). In addition, each affected note may be notated with a cross through the stem, to alert the reader to this unusual technique. This notation is efficient for repeated use (b):



Left-hand pizzicato

Place a '+' sign above the stave for each left-hand pizzicato note or chord; in two-part writing, the sign goes to the relevant stem end. When the same or different pitches are simultaneously bowed and plucked, assign the pizzicato notes opposite stem directions. Use a separate notehead only when the pizzicato note is to be played on a different string from the same bowed pitch (see bar 3, second beat, below).

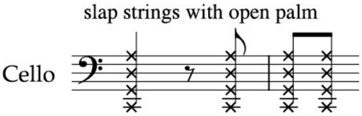
The technique of left-hand pizzicato is so well established that there is no need to add a pizzicato instruction as well as a plus sign, nor to indicate *arco* for a subsequent bowed note. However, an ordinary right-hand pizzicato should be indicated as normal (last bar):



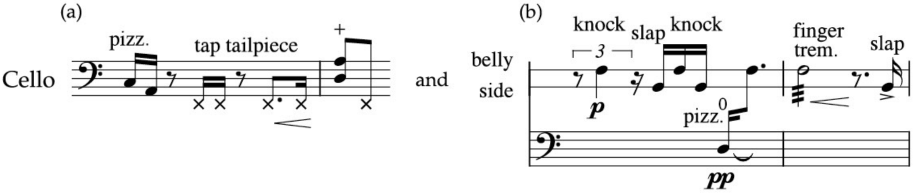
Percussive sounds

All percussive sounds may be notated with crossed noteheads and each technique given a verbal instruction above the stave.

When the sounds are to be created on the strings, place crossed notes at open-string pitches:



When an instrument is to be struck other than on the strings, place crossed notes outside the stave (a). Alternatively, one or more lines above the stave may define different areas on the instrument (b). When there are independent lines, rhythms notated with ordinary notes are easiest to read:



(See also *Symbols to replace repeated instructions*, p. 494.)

Harmonics

Two types of harmonic (Italian: *armonico(i)*, abbrev. *arm.*) can be produced on stringed instruments: natural and artificial. The notation differentiates the two; this is an important distinction for the player, as the sounds are produced in different ways.

Notation options

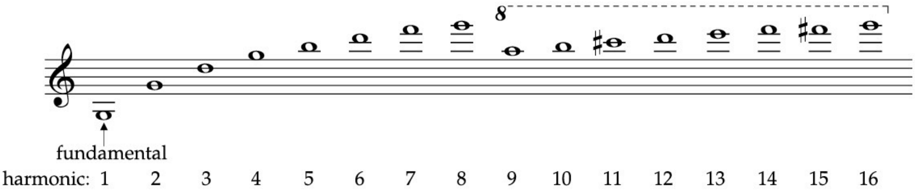
The recommended approach is to write harmonics as the player will finger them.

Another approach is to notate all harmonics at sounding pitch with a small circle over each note but without distinguishing between natural and artificial harmonics, leaving the player to find the most convenient or most secure place to sound each note. (This approach is not always appropriate in orchestral music, where, with limited rehearsal, there may not be time to work out how best to finger a passage of harmonics.) A statement should be added if this approach is used, since usually this notation suggests that all harmonics are available as natural harmonics.

Natural harmonics

The open string is touched lightly to produce a harmonic (also called an ‘overtone’ or ‘partial’) at various points (‘nodes’) along the string.

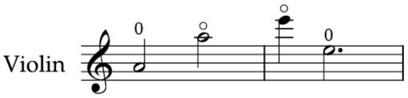
Harmonic series for violin and viola G string


8
fundamental
harmonic: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

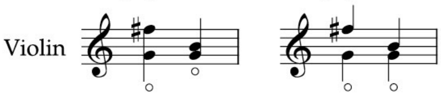
The first ten or twelve harmonics are given for each string in Table 2, opposite. Higher harmonics are available – as can be seen from the example above – but are, generally, impractical to prescribe.

Natural harmonics are written at sounding pitch with a small circle above the note (but see also *Alternative notation for harmonics 3–6*, p. 416).

Printed music distinguishes the harmonic circle from the open string, which uses a zero:



The harmonic circle goes below the stave if only the lower note of a chord is a harmonic:


one player
two players
Violin

Double-stopped harmonics require a circle for both notes:

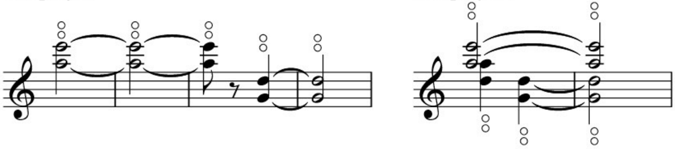
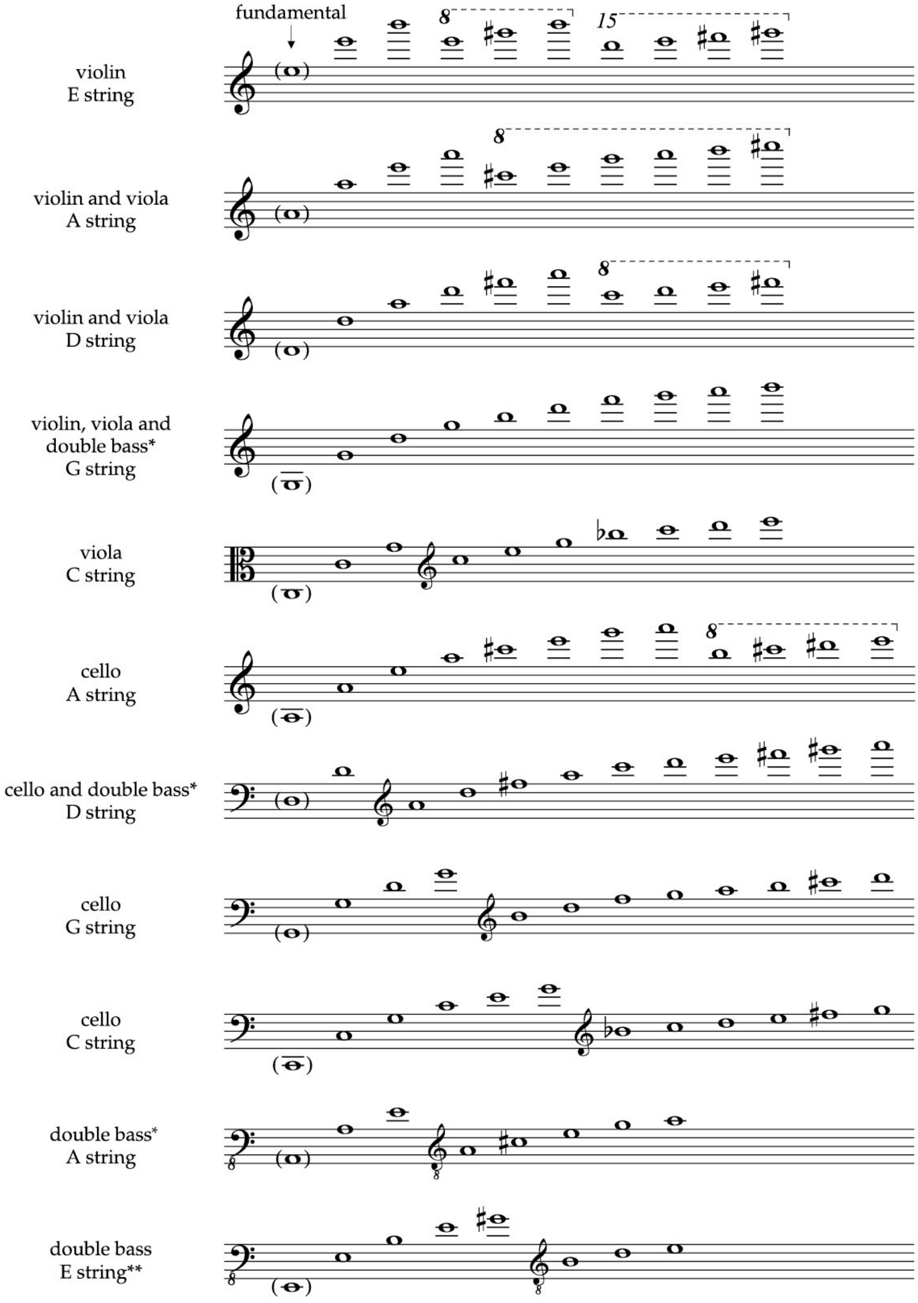

one player
two players

TABLE 2: Natural harmonics

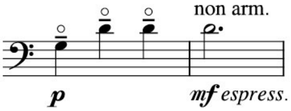

fundamental
8
15
violin
E string
violin and viola
A string
violin and viola
D string
violin, viola and
double bass*
G string
viola
C string
cello
A string
cello and double bass*
D string
cello
G string
cello
C string
double bass*
A string
double bass
E string**

* Double bass written pitches (sounding one octave lower). It is advisable to use only up to the 8th double bass harmonic on all strings

** Double bass harmonic series also available on string extension, e.g. to C or B

Each repeated harmonic note requires a circle. It is useful to repeat the circle on a tied harmonic – or, in a score, at least as a reminder at the start of a new system – to confirm that the harmonic should not transform into a stopped note.

To cancel the use of a harmonic – i.e. so that the pitch becomes a stopped note – add the verbal instruction *non arm.*:



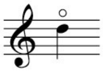
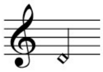
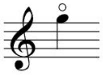
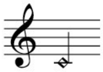
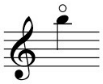
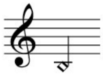
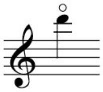
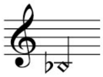
ALTERNATIVE NOTATION FOR HARMONICS 3–6

The second harmonic (the octave) divides the string into equal halves. To write the third to sixth harmonics at pitch implies that they are produced on the upper half of the string, between the octave harmonic and the bridge (see column *above halfway point*, Table 3). These same harmonics can also be produced on the lower half of the string, between the octave harmonic and the tuning peg (see column *below halfway point*).

To indicate that harmonics are to be played on the lower part of the string, add a diamond-shaped note at the position where the finger touches the string. The harmonics occur in the following places along the string:

TABLE 3: Natural harmonics, alternative fingerings

violin and viola G string

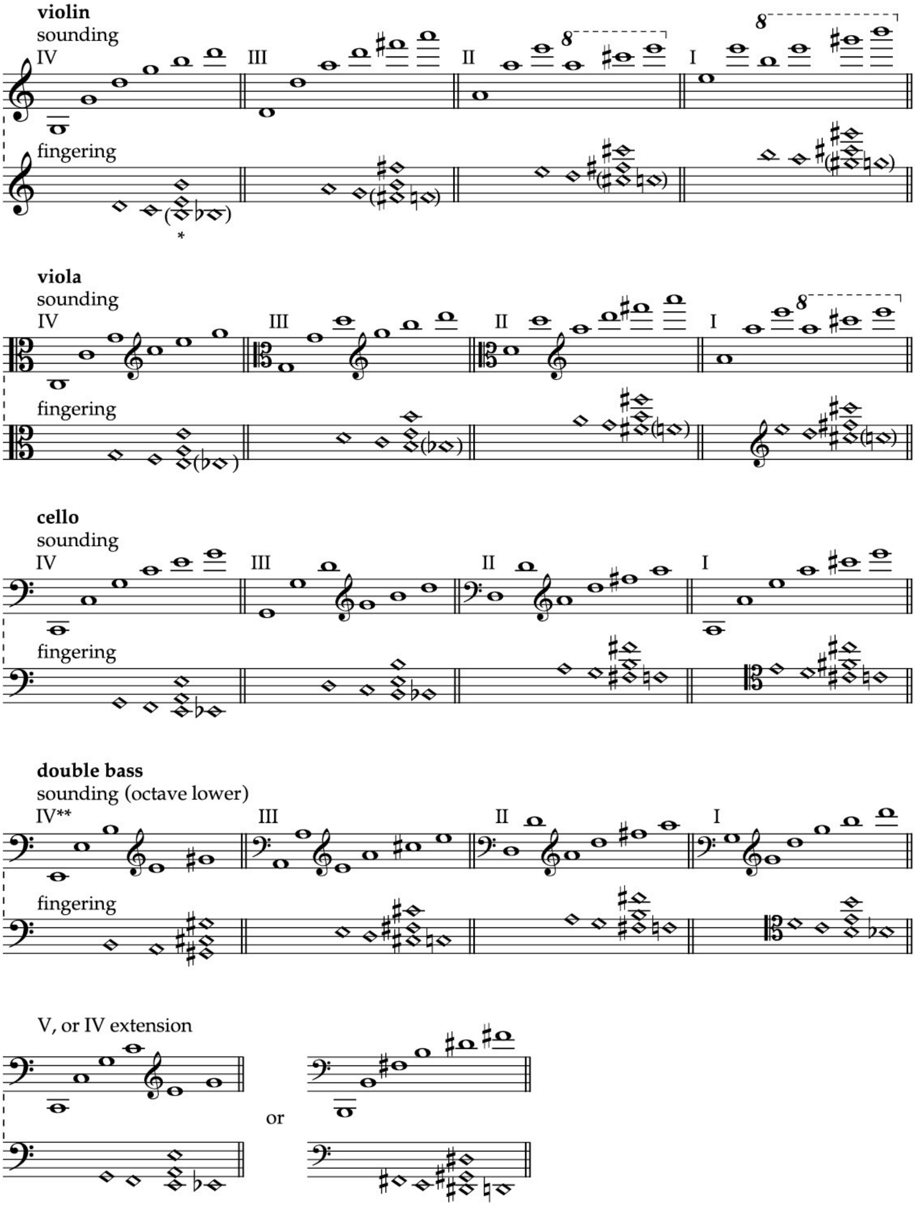
	above halfway point	notated*	below halfway point	notated
3rd harmonic	⅔ of the string		⅓ of the string	
4th harmonic	¾ of the string		¼ of the string	
5th harmonic	⅘ of the string		⅕ of the string**	
6th harmonic	⅚ of the string		⅙ of the string	

* and sounding

** This harmonic can also be produced at other points along the string (see Table 4)

The following table shows all available harmonics that can be played in this way:

TABLE 4: Natural harmonics, fingerings in lower half of string


violin
sounding
IV
III
II
8
I
8
fingering
*
viola
sounding
IV
III
II
I
8
fingering
cello
sounding
IV
III
II
I
fingering
double bass
sounding (octave lower)
IV**
III
II
I
fingering
V, or IV extension
or

---

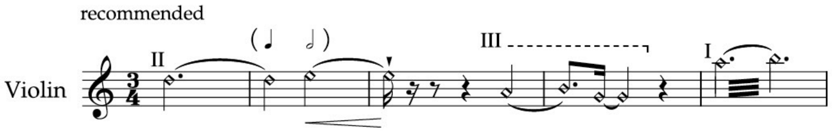
* The harmonics in brackets are insecure

** Harmonics also available on E♭, D or C♯ fundamentals if IV string tuned down

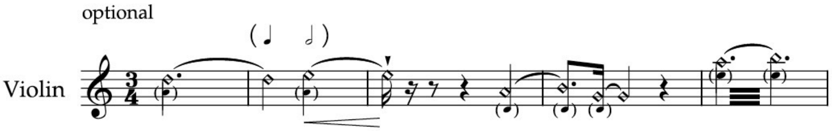
This fingering allows harmonics to be combined with stopped notes in low hand positions (i.e. close to the tuning pegs) without significant shifts.

The diamond remains hollow, regardless of its duration. Where the rhythm is not clear from its context (bar 2, below), differentiate minims and crotchets by writing the rhythmic values as small notes in brackets over the stave.

Always designate the string to be used, since fingering for the same pitch on different strings will result in different harmonics (see also *Octave harmonic*, p. 419):

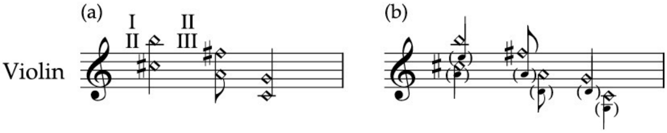


An alternative approach is to indicate the open-string pitch of the designated string (as illustrated in the following example). However, this traditional style of notation is more cumbersome to read. If this notation is used, it is very important to differentiate the open-string pitch from an ordinary notehead, as otherwise this notation would be identical to that used for artificial harmonics (see p. 420). Use a small bracketed black notehead (regardless of duration) for the open string and for the first note only of a tied harmonic:



Double-stopped harmonics are clearest to read when the string numbers are given above the stave (a). It is unnecessary to label the lowest two strings, as such double-stops cannot be played in any other way (see (a), third chord).

If open-string notes are used instead of string numbers, give each harmonic a separate stem (b):

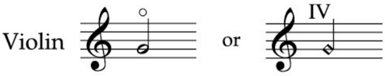


A diamond-shaped note does not take a circle above it: circles should be used exclusively for the notation of harmonics at sounding pitch.

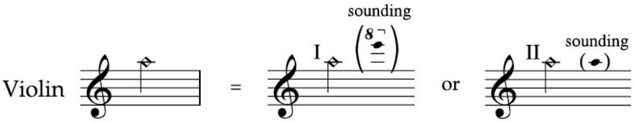
Since the fingered note is not the resultant sounding pitch, to avoid confusion it is often advisable to indicate the sounding pitch as well (see *Indicating sounding pitches*, p. 421).

OCTAVE HARMONIC

The octave harmonic, uniquely, has only one fingering: the note is fingered as a stopped note and sounded as a harmonic at the same place on the string. It is sometimes written as a diamond note where it is useful to match the notation of other harmonics that are played on the lower half of the string. However, since the fingering is the same as the sounding pitch, it is more usual to notate it as an ordinary note:



If the octave harmonic is written as a diamond note for other than the top string, it requires a string designation ('II' in the example below) – otherwise it will be taken to be the natural harmonic played a fourth above the open string on the adjacent higher string:



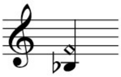
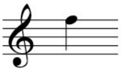
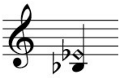
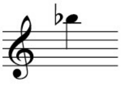
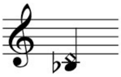
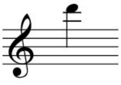
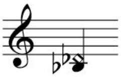
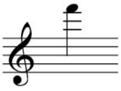
INDICATING MICROTONES

Harmonics other than fifths and octaves deviate in pitch from their equal-tempered counterparts but it is unnecessary to indicate microtone accidentals for them. Furthermore, this information may confuse the player since the pitch of a natural harmonic cannot be modified. Add any relevant microtonal accidentals only when a player should modify the pitch by playing an artificial harmonic (see example *Harmonic sounding pitches and clef changes*, p. 422).

Artificial harmonics

The player creates an artificial fundamental by stopping the string at one pitch with the first (index) finger, or the thumb (cello and bass only), and touching the string at a higher interval (the node) with another. This interval can be only as wide as the hand stretch possible on each instrument. The most commonly used artificial harmonic is at the node a fourth above the fundamental:

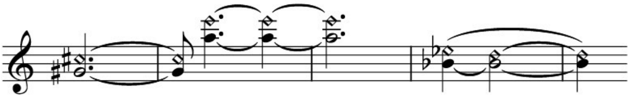
TABLE 5: Artificial harmonics

interval creating artificial harmonic	sounding above the fundamental	written	sounding
perfect fifth	1 octave and a fifth		
perfect fourth	2 octaves		
major third	2 octaves and a major third		
minor third*	2 octaves and a fifth		

* This is a difficult harmonic to sound, particularly on violin and viola

Notate the stopped pitch as an ordinary note, with the touched pitch above it as a diamond note. Both notes must always be on the same stem.

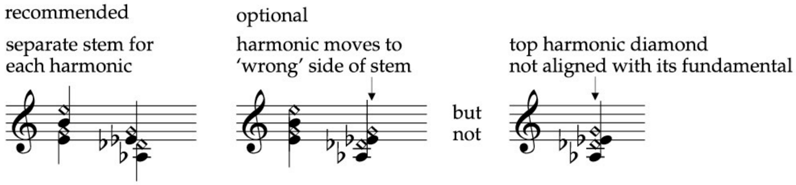
The diamond remains hollow, while the stopped note indicates the duration. Both notes take ties and duration dots:



This fingering does not take a harmonic circle above it: a circle is always reserved for a sounding pitch.

DOUBLE-STOPPED HARMONICS

In a double-stop, the fundamental and node (i.e. the two noteheads) for each harmonic must vertically align. It is clearest to use separate stems for each harmonic. Where there are adjacent notes, offset the lower harmonic to the right; if it is essential to have only one stem – e.g. due to lack of space – then both notes of one of the harmonics must move to the wrong side of the stem (this is not recommended):

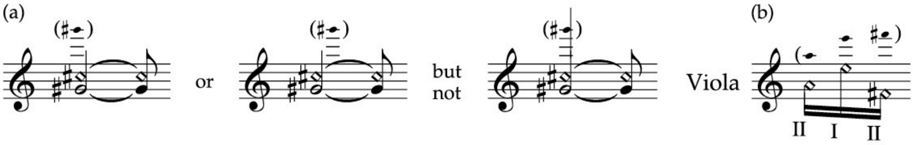

recommended
separate stem for each harmonic
optional
harmonic moves to 'wrong' side of stem
but not
top harmonic diamond not aligned with its fundamental

Indicating sounding pitches

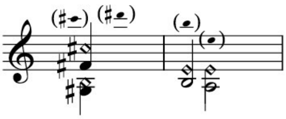
In a context in which harmonics may be unfamiliar, it is advisable to indicate sounding pitches for any harmonic fingering (natural or artificial) that does not represent actual pitch. This enables players to be sure what pitch is intended: they may choose to play the harmonic in a different position, better suited to a particular instrument. (Double bass players, especially, often prefer to find harmonics on another part of the string.)

Professional players will be familiar with the most commonly used harmonics (both the natural and artificial harmonics at the fourth) and therefore do not require sounding pitches for these to be indicated.

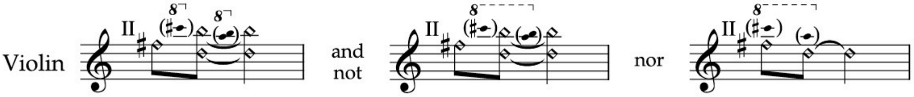
Indicate a sounding pitch as a small notehead in brackets directly above or after the fingered pitches. Do not join a small note to the stem of the harmonic, as it might look as if it is an additional note (a). A harmonic circle over the sounding pitch may be indicated but is not necessary. Where convenient, normal stem direction of beamed groups may be reversed to allow sounding pitches to be placed directly above the harmonics (b):



When there are two parts on one stave (for either one or more players), the sounding pitch for the lower part is offset to the right:

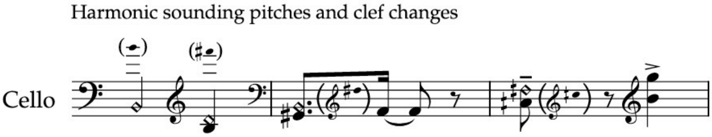


Sounding pitches that require octave signs should be placed after the fingered pitches, so that it is clear that the 8⌝ does not affect the fingerings:

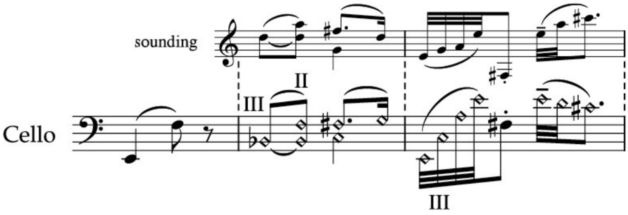


CLEF CHANGES

Wherever possible, retain the same clef for both fingered and sounding pitches (see bar 1, below). When the sounding pitch requires a clef change, place a cue-sized clef in brackets together with the sounding pitch. The clef for subsequent notes is not affected (bar 2). A change of clef for a fingered pitch takes an independent clef (bar 3):



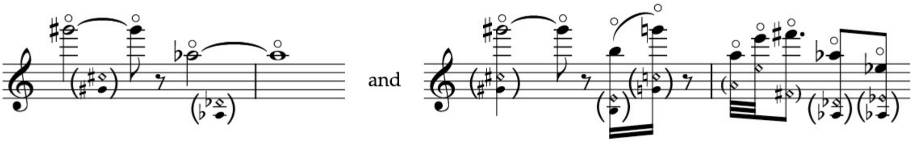
Where a passage requires many sounding pitches to be notated, and especially if these require clef changes, they grossly distort the rhythmic spacing and clutter the music. In this instance, transfer sounding pitches to a smaller cue stave above the player's part:



(For styling of a cue stave, see *Practical alternatives to technical difficulties*, p. 497.)

Alternatively, sounding pitches of recurring harmonics may be illustrated in a footnote, using a cue stave.

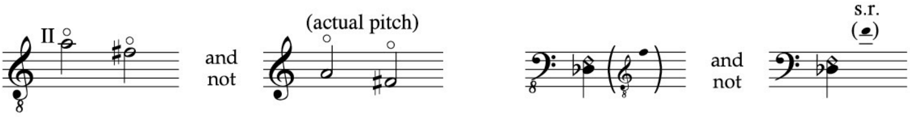
Another approach is to shift emphasis to the sounding pitch by including the harmonic finger positions as small bracketed notes below or beside the actual pitches. This approach gives the player the flexibility to find alternative fingerings more easily:



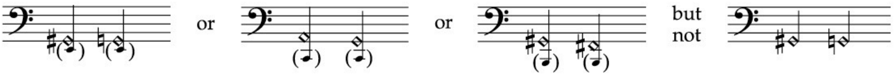
Double bass harmonics

It is extremely confusing for the player to read the qualifying sounding pitches of harmonics when they are notated at actual pitch (*suono(i) reale(i)* or *s.r.*), although this is seen in many editions. It is recommended that all pitches, including natural harmonics in the treble clef, and the sounding pitches of artificial harmonics, are notated to sound an octave lower than written.

To clarify the octave of sounding pitches, either give an explanatory footnote on the relevant page or attach an '8' to the clef:



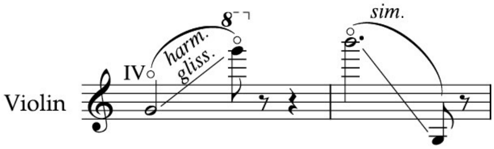
Where the 4th string might have an extension mechanism, and natural harmonics use fingering in low hand positions, indicate the pitch of the open string to avoid ambiguity:



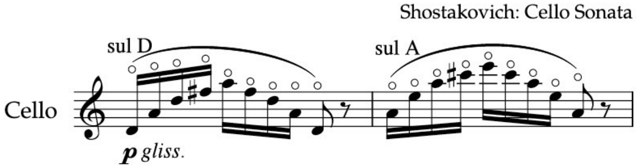
Harmonic glissandos

NATURAL HARMONICS

When a finger lightly touches the string, a glissando will pick up the notes of the harmonic series on that string. Indicate the string to be used. As long as the glissando is indicated *harm. gliss.*, interim pitches between the starting and finishing notes need not be specified:

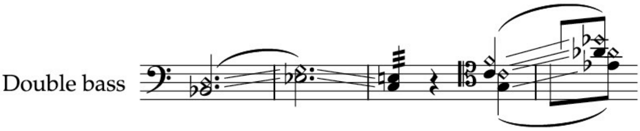


When a glissando is to sound the harmonic pitches in a specific rhythm, notate each harmonic individually:



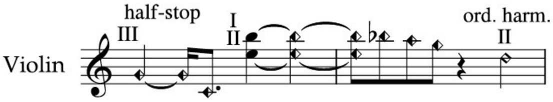
ARTIFICIAL HARMONICS

Add glissando lines between both the fundamental note and the diamond. This indicates that the hand slides along the fingerboard, maintaining the same interval between the fingers:



Half-stopped harmonics

Reduced left-hand finger pressure at nodal or non-nodal points produces indeterminate sounds predominantly of overtones. This may be notated with a half-filled diamond note, together with a verbal explanation at its first appearance such as *half-stop*, *half-harmonic* or *reduce normal pressure*. Since the symbol is quite hard to read in the stave, it is a good idea to confirm an immediately following ordinary harmonic:



Scordatura

This is the name given to the practice of re-tuning one or more strings. Indicate the altered open-string pitches at the start of a scordatura passage (see Kurtág extract, opposite).

In a full score, notate scordatura notes at sounding pitch, for convenience. (For clarity, the score should state whether played or sounding pitch is used.)

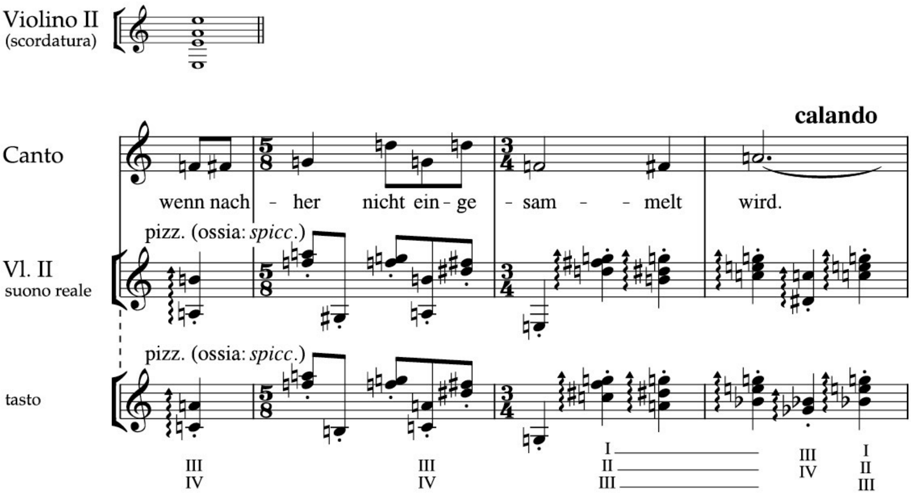
PLAYER'S PART

Notate the part at sounding pitch so that the player can see clearly what is intended. When more than one string is re-tuned and thus the fingering becomes complicated, allocate a second stave for the part at transposed (i.e. fingered) pitch (marked *tasto* – 'fingered', below). Place the stave with sounding pitches above the one for fingered pitches. The sounding-pitch stave may be cue-sized, since it is needed only for reference. In the extract below, both violin staves are full size: both the singer (who reads the actual pitches) and the player (who reads the fingered pitches) perform from this score.

In an instrumental part with extended scordatura, consider presenting the two versions (transposed and sounding versions) on facing pages.

A transposed version must clarify which strings the player should use – otherwise there is too much room for confusion:

Kurtág: *Kafka Fragments*


Violino II
(scordatura)
calando
Canto
wenn nach - her nicht ein - ge - sam - - melt wird.
pizz. (ossia: spicc.)
Vl. II
suono reale
pizz. (ossia: spicc.)
tasto
III IV
III IV
I II III
III IV
I II III

(The dotted systemic barline between the two versions of the violin part reflects the published score; for recommended style, see *Practical alternatives to technical difficulties*, p. 497.)

When a glissando is to an unspecified pitch below the bottom open-string pitch, an instruction must indicate that the string is to be de-tuned (see double-bass example under *Triangular noteheads*, p. 12).

Technical instructions

Mutes

Mute instructions are usually given in Italian:

con sord. / sordina(e)	with mute(s)
senza sord.	without mute
via sord.	remove mute

Position a mute instruction after player numbers (if these are specified), as the first of any technical instructions, since the player needs time to attach or remove the mute (see *Mute instructions*, p. 563; for mute instructions on a shared score stave, see *Mutes*, p. 530).

The instruction *senza sord.* goes before the first unmuted notes. The less commonly used *via sord.* is placed directly after a muted passage and is a useful warning to the player – for instance, if taking off the mute coincides with a page-turn.

Order of text instructions

Specify player distribution first, so that it is clear how many players (if not all) are affected by the ensuing instructions; playing techniques go afterwards, closest to the relevant notes (see *Technical instructions*, p. 492).

TABLE 6: Horizontal arrangement of technical instructions

number of players	division	mute	playing method	area on string	bowing technique	part of bow	expressive technique	string label
tutti	unis.	con sord.	arco	sul pont.	trem.	alla punta	con / senza vibrato	IV
solo(i)/ sola(e)	div.	senza sord.	pizz.	sul tasto	sulla corda	al tallone	glissando	sul G
			col legno		detaché	tutto l'arco	arpeggiando	
					flautando			
					spiccato			
					jeté			

Mute instructions precede division where no player numbers are given, e.g. *con sord., div. arco*.

(For labelling, see also *Divided string ensemble*, p. 428.)

Cancelling instructions

The terms *ord.*, *nat.*, or *norm.* cancel non-standard techniques (see *Cancelling instructions*, p. 495).

Cancel the following instructions as listed:

instruction	**cancelled by**
div. a leggio / divide by desk	div. ord.* / divide by player
con sord.	senza sord.
snap pizz. / ⌽ / ♀	pizz. ord.*
col legno tratto / battuto	arco ord.*
trem.	non trem.
arm.	non arm.
spiccato / jeté	sulla corda / ord.*
alla punta / al tallone	pos. ord. *
non vib. / senza vib.	vib. / con vib. / vib. ord. *

* ord. / nat. / norm.

Techniques that are followed by a dotted line ---┐ for their duration do not require cancelling verbally.

Positioning symbols

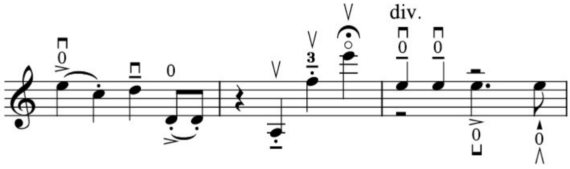
Technical instructions go furthest from a note, since it is more important that information as to how the note should sound goes closest to it. Rarely do all the signs below appear at once, but if they do, string numbers and fingering should be displaced to the left where possible, to reduce the stack of symbols (see example under *Fingering*, p. 396).

Harmonic circles and open-string indications may be fitted inside a slur where they would otherwise appear too far from their notes (see Shostakovich extract, p. 424).

Place symbols in the following order relative to the note:

⊓ and V	furthest from note
pause	
string indication	↓
fingering	
open string/harmonic circle	
articulation	closest to note

The symbols go above the stave, except where there is a lower part with separate stems:



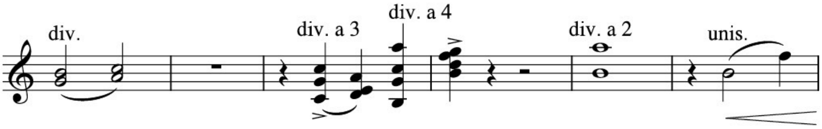
Divided string ensemble

Labelling divisions

Division is indicated *div.* (*divisi*). This divides each member of the string section (1st violins, 2nd violins, etc.) into two lines unless there is an instruction to divide into further lines: *div. a 3*, etc.

The 'outside player' at the desk takes the upper note, the 'inside player' the lower note. When there are more than two notes and each note is to be played by a separate player, this division must be indicated (bars 3–4 below).

A move back to two lines from a greater division is indicated *div. a 2* (see bar 5). A return to unison is marked *unis.* (*unisoni*):



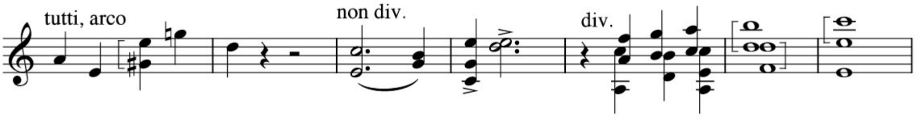
(See also *Unisons*, p. 526.)

Double-stopping and a divided line

In a full score, it is necessary to distinguish between double-stopping and a divided line since it is acceptable for a divided line in rhythmic unison to have single stems – as in the example above (see also *Sharing stems*, p. 525).

When two lines on a single stave have double-stops, each line must take separate stems to clarify its pitches (see bar 5, below).

The instruction *non div.* indicates that chords should not be divided between players (see bar 3, below). To indicate that an occasional multiple stop is not divided, place a vertical bracket [beside the chord – usually in front of it (bar 1). The bracket is quicker to read than *non div.* (However, a passage of undivided chords should always take the verbal instruction.) A bracket also shows how a chord containing semibreves or breves divides (bars 6–7):



A vertical bracket also signifies *non arpeggiando* for pizzicato chords (see *Notes plucked simultaneously*, p. 409; also, *Extent of arpeggiation*, p. 132). Therefore, to avoid ambiguity, clarify an entry with *non div.* (or *non arpegg.*), if necessary.

Player allocation

It is usual to prescribe the required number of divisions and leave the players to decide how to distribute the lines. The allocation depends upon the nature of the material (including its difficulty), the number of players available and the acoustic of the hall. Since it is acoustically preferable to disperse a line through a whole section, division into two or four is 'at the desk', i.e. each consecutive player takes the next line. There is no need to indicate this (*div. ord.*) except, conceivably, after a differently prescribed division.

Where there are many different divisions, the players at a single desk take the same line so as not to distract each other. This is prescribed as *divide by desk* (Italian: *div. a leggio*). Such an indication may be given (although it is usually obvious) when it is clear that this is going to be the best way to divide a section.

Divisions other than into two or four (*div. a 3*, *div. a 5*, etc.) are more likely to be by desk than by player – for the same reason.

Half the section (usually allocated to each 'outside' player at the desk) is labelled *half* (Italian: *metà*).

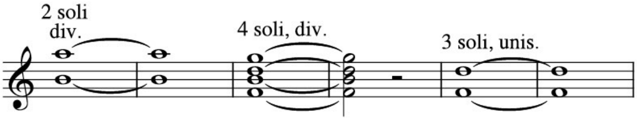
PLAYER LABELLING

It must be clear whether a numeral refers to the number of the division, the desk or the player. A specific number of players may be allotted desk or player numbers, e.g. *2 desks* or *4 soli* or *4 players* and *back desk* or *last 2 players*.

Individual desks are labelled *desk 1*, *desk 2*, etc.

Individual players are labelled *solo* or *player*: *1 solo*, *2 solo*, (or *solo 1*, *solo 2*) or *player 1*, *player 2*, etc.

Two or more solo players together are marked *2 soli*, *3 soli*, etc., or *2 players*, *3 players*, etc.

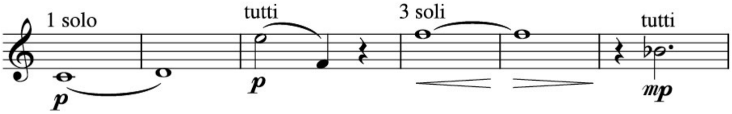


(See also *Use of 'solo' and 'soli'*, p. 495.)

An alternative approach is to label outside-desk players as (a), inside players as (b): thus desk 1's labels would be 1(a) and 1(b). This concise labelling saves space in a large score (see Carter extract, p. 517).

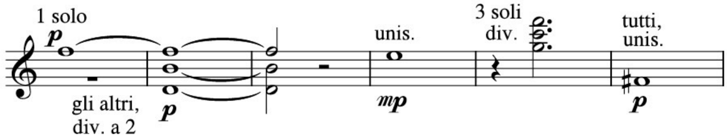
The remaining players of a section are labelled *gli altri* (abbrev. *altri/g.a.*) or *the others*.

Tutti ('all') indicates that the whole section should play together after one or more players has been silent:



Unis. indicates that the whole section should play together after a division of either equal lines or *soli* + *gli altri* (see next example).

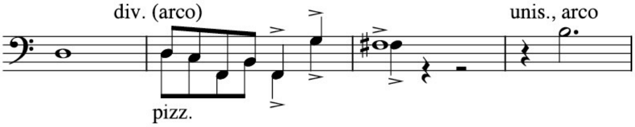
Where one or more players has been silent and the rest of the section divided, a return to a single line requires a *tutti* as well as a *unis.* instruction:



In Italian, *viola(e)* is a feminine noun and may take feminine endings if preferred: *sola*, *sole* (pl.), *tutte*, *le altre*.

Combined techniques sharing noteheads

A string part may be divided so that, while players have the same notes, some may use one technique and some another. In a score individual stems indicate this. Label each stem with the required technique so that there is no confusion:



In a player's copy, assign a separate stave for each technique, for the sake of clarity.

(For layout of string ensemble parts, see *Divided string lines*, p. 584; for score layout, see *Divided string section layout*, p. 534.)

15

Vocal Music

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Clefs

Clefs other than the treble and bass are used only to replicate authentic performing editions of early music or before the opening of a piece as an incipit to show the clef in which the music was originally written (see below). In all other circumstances, soprano, alto, counter-tenor and tenor voices appear in the treble clef, with the bass voice in the bass clef.

Music for tenor is written in the treble clef sounding an octave lower than written. The clef 𝄠 is recommended, as this helps to identify the tenor line in choral music.

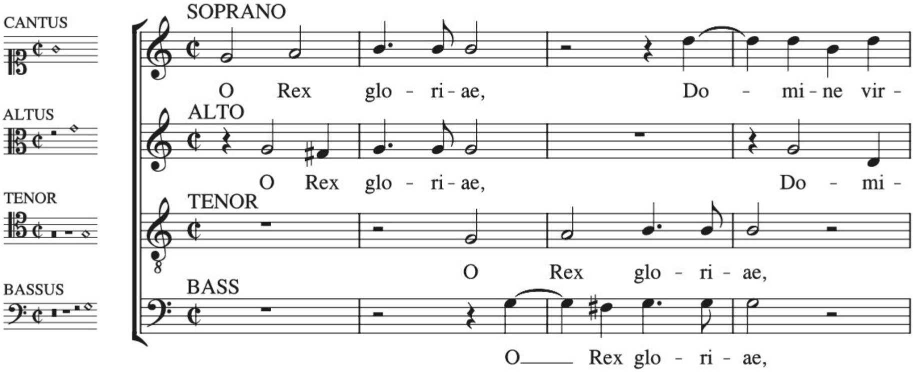
When a four-part choir is laid out on two staves, the tenor part is written at concert pitch in the bass clef, in order to share a stave with the bass voice (see *Two-stave SATB layout*, p. 468).

The baritone voice almost always appears in the bass clef, although the treble clef (sounding an octave lower than written, as for the tenor voice) may be used for a solo part with a high tessitura. In choral writing, the treble clef is not recommended, since a chorus-part baritone range should sit comfortably in the bass clef.

INCIPIT

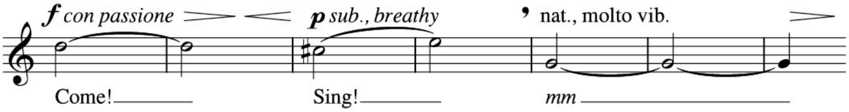
An incipit (Latin, 'begins') indicates original clef, key signature (if used), time signature, first written note in its original note-value, and, optionally, original rests prior to the first sung note. Each voice part's original designation is also included:

Marenzio: *O Rex gloriae*



Placing dynamics, expression marks and technical instructions

Dynamics, expression marks and verbal instructions go above the stave in order to leave the space below the stave clear for the sung text. This ensures that technical instructions cannot be confused with the text:

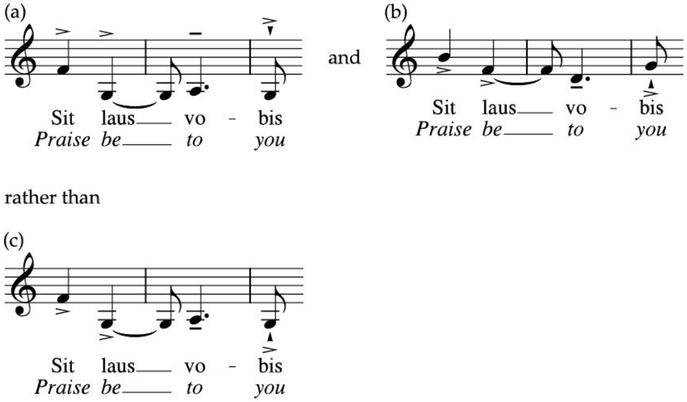

f con passione
p sub., breathy
nat., molto vib.
Come!
Sing!
mm

(See also *Placing dynamics relative to the stave*, p. 101; also, *Performance instructions*, p. 491.)

Note that short crescendos and diminuendos should appear as hairpins, minimizing the amount of verbal information to read (this is especially helpful in choral music).

ARTICULATION MARKS

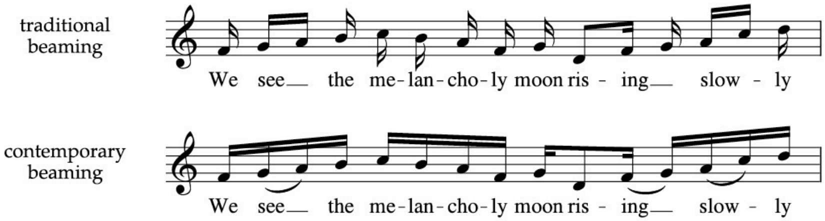
Traditionally, printed music placed all articulation marks above the stave, so as to be clear of the text. This is still acceptable practice: it enables the text to be placed as close as possible to the stave, an important consideration if reading an underlying translated text (a). It is equally acceptable (and now common practice) to place articulation next to all noteheads, in order to make it more conspicuous in some contexts (b). However, articulation is best placed above the stave if it would otherwise force the text to be lowered too far below the stave (c):


(a)
Sit laus vo - bis
Praise be to you
and
(b)
Sit laus vo - bis
Praise be to you
rather than
(c)
Sit laus vo - bis
Praise be to you

(For layout of more than one text, see *Alternative text underlay*, p. 449.)

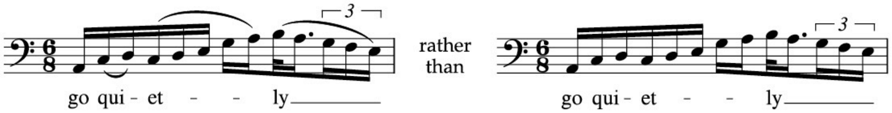
Beaming

Until well into the twentieth century, a separate tail was used for each syllable in vocal music, and notes within a beat were beamed only to indicate that a syllable took more than one note. In syllabic setting, this notation makes all but the simplest rhythms difficult to read, a problem compounded by the fact that text underlay often distorts note-spacing (see p. 440). Instrumental beaming (i.e. beaming into beats) is now used in vocal music together with syllabic slurs (see below):


traditional beaming
We see the me - lan - cho - ly moon ris - ing slow - ly
contemporary beaming
We see the me - lan - cho - ly moon ris - ing slow - ly

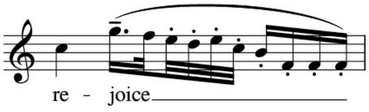
Syllabic slurs

A slur joins two or more notes sung to a single syllable. This visually confirms the syllabic underlay:

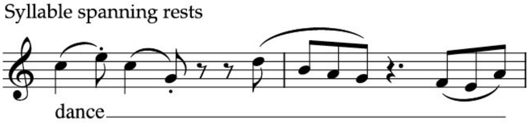

3
go qui - et - - ly
rather than
3
go qui - et - - ly

(See also *Syllable underlay*, p. 439.)

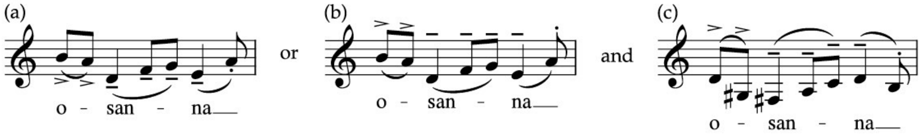
Non-legato singing can be indicated with staccato dots, tenuto lines or accents within the slur:



Omit syllabic slurs where phrasing or rests occur within the span of one syllable, as two sets of slurs are confusing:


Syllable spanning rests
dance

A short slur is usually best placed close to the noteheads, regardless of whether articulation appears above or below the stave ((a) and (b)). Where pitches are below the stave, the slur may be best placed above the stave to avoid lowering the text level (c):



Place a long syllabic slur above the stave, so that it is clear of the text (see example *Hyphens placed away from noteheads*, p. 449).

(See also *Syllabic slurs for alternative text*, p. 451, and *Wordless singing*, p. 455.)

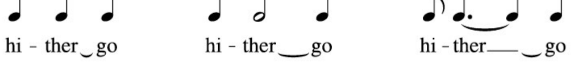
Phrasing and breathing points

Phrase marks are not generally used in vocal music because of the potential confusion with syllabic slurs. It is necessary to indicate phrasing only where phrase length differs from the punctuation of the text or where phonetic sounds replace text (see *Changing vowel sounds*, p. 452 and *Wordless singing*, p. 455). If used, phrase marks should be placed above the stave so as to be clear of the text.

A breathing point may either be written into the music as rests, or a breath mark indicated independently. In the latter case, place a tick or comma above each vocal stave, just before a subsequent note or barline. When the time taken to breathe is subtracted from the previous note, mark in a tick ✓. Placed in brackets, the tick indicates an optional breath (✓). When the note should be sung for its full duration, with extra time for the breath, add a comma above the stave – this adds a short pause to the bar in which it occurs.

INDICATING WHERE NOT TO BREATHE

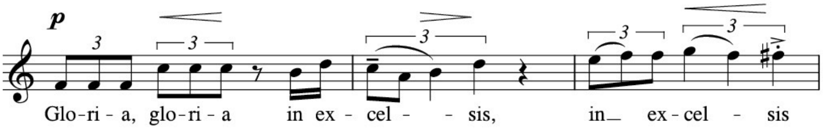
Place the elision sign across the point at which breathing is prohibited, under the text between the two syllables, or between an extender and the following word:



(See also *Syllable elision*, p. 446; for *Extenders*, see p. 447.)

Placing tuplets

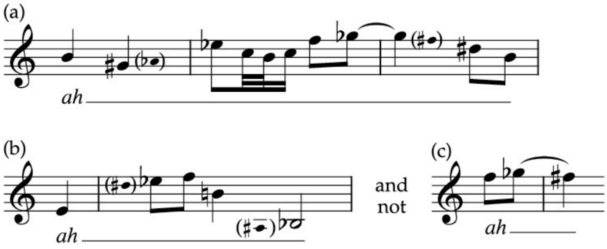
Place tuplet indications above the stave, so that they are well away from the text. The eye also becomes accustomed to looking in one place for certain information:


p
3
Glo-ri - a, glo-ri - a in ex - cel - - sis, in ex - cel - sis

Enharmonic spelling

It is extremely important to spell the notes of a vocal line in their proper harmonic context so that the singer can think in terms of the degrees of the scale. In a context without clear tonal reference, spell notes with the most recognizable melodic intervals, using perfect, major and minor intervals wherever possible. This enables the singer to 'hear' these intervals in advance of singing them.

Where there is room, give the relevant enharmonic equivalent-pitch notehead for unavoidable augmented or diminished intervals, so as to convert the interval to a familiar one. Give the enharmonic equivalent for the first note (a), unless the second-note equivalent would provide more familiar spelling (b). To provide a cue-sized note is preferable to the practice of using ties between enharmonically equivalent notes; this notation is off-putting at first sight, as the tie appears to join two different pitches (c):



(See also *Note-spelling*, p. 85.)

Text

It is very helpful to precede the music with the author's text, in its original poetic or prose format. This encourages an independent understanding of the text. If appropriate for an appreciation of the whole text, sections of the original not set by the composer may be included in square brackets.

When the text is in an unfamiliar language or dialect, provide a translation alongside the original.

The text source should be credited below the given text and any copyright credit added here. When the text is not presented independently of the music, credit the source on the title page or on the first page of music (see *Information on the first page of music*, p. 504).

Presenting the text in the music

Place the text below the vocal line, in roman type. Italic may be used to differentiate sounds that are not part of the literary text, such as *mm* and *ah* (see *Qualifying text sounds*, p. 451; for second languages and refrains, see *Alternative text underlay*, p. 449).

Use upper- and lower-case letters (never exclusively capitals) exactly as written by the author, including poetic capitalization after line breaks in the text. Punctuation follows the author's original, even when this is contrary to the musical phrasing.

Where a word, phrase or line of text is to be repeated, commas separate the repetitions and the final punctuation comes only at the very end. A repeated section of text starts with a lower-case letter:

So sing it, sing it, sing it!

However, where a whole line is repeated, the initial capitalization for the repetition is optional:

When shall we sing, When shall we sing?

or When shall we sing, when shall we sing?

If a voice enters to take up a text already initiated in another voice part, begin such text with a capital letter only if a capital appears in the original source.

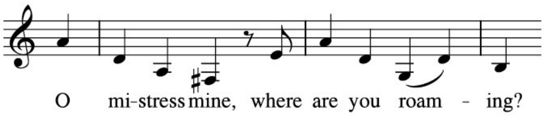
TEXT SIZE

The text must be at a comfortable size to read easily. Do not reduce its size to accommodate lengthy syllables for short note-values. A good proportion for the height of a lower-case letter (such as 'm') is one stave-space.

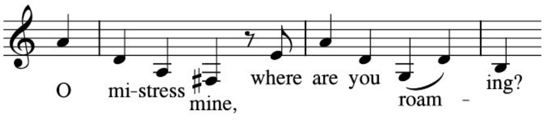
Horizontal underlay

Place a line of text as close as possible to the stave without colliding with the notation. Full stops and hyphens should be sufficiently far from the notes for them not to be mistaken for staccato dots or tenuto lines.

A line of text should be parallel to the stave for the length of the system, and not be placed on different levels to accommodate notes below the stave:


O mi-stress mine, where are you roam - ing?

and not


O mi-stress mine, where are you roam - ing?

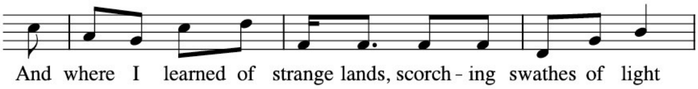
Syllable underlay

Divide all words of more than one syllable into separate syllables and separate them by inserting hyphens (see *Word division*, p. 441). This clarifies which syllable is sung to which note.

Place each syllable exactly under the note to which it is sung. Syllables incorrectly aligned will cause confusion.

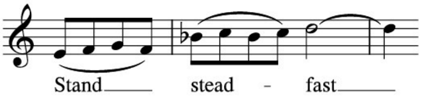
SINGLE NOTE PER SYLLABLE

Centre each syllable directly under its note. For very long syllables, place only the first two or three letters to the left of the note so that the syllable does not start too far before its sung note. If necessary the text may precede the barline:

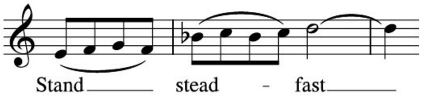

And where I learned of strange lands, scorch - ing swathes of light

MORE THAN ONE NOTE PER SYLLABLE (INCLUDING TIED NOTES)

The syllable should be aligned left under the first notehead. This draws the eye to the right – an important consideration, since the singer always needs to be looking forward:


Stand stead - fast

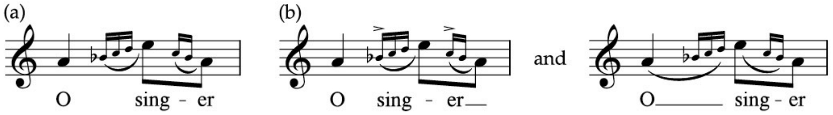
and not


Stand stead - fast

Some editions place all syllables consistently to the left of the note, but, in general, this is not helpful. From time to time there may be an aesthetic case for doing so, in order to align vertically either the same text below different staves or different texts below the same voice part. (However, this style has not been adopted in the relevant sections below – see *Alternative text underlay*, p. 449, and *Two-stave SATB layout*, p. 468.)

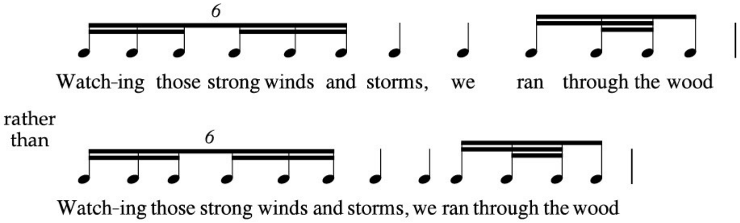
SYLLABLE UNDERLAY WITH GRACE NOTES

The traditional approach is to align the text with the full-sized note (a). However, especially in complex music, it is clearest to align the text exactly where it is to be sung (b):

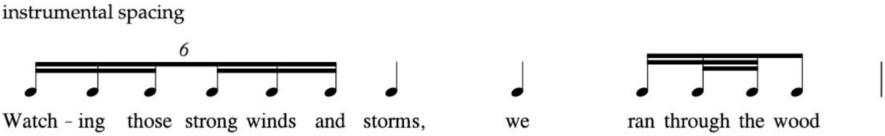

(a)
O sing - er
(b)
O sing - er
and
O sing - er

Note-spacing and text

Note-spacing is normally governed by placing note-values in relative proportion to one another (see *Rhythmic spacing*, p. 39). In vocal music, the length of text syllables also determines spacing. Short note-values with lengthy syllables can distort spacing, making rhythms difficult to read. Where possible allow more space for longer durations, to minimise distortion:


6
Watch-ing those strong winds and storms, we ran through the wood
rather than
6
Watch-ing those strong winds and storms, we ran through the wood

It is not always practical to implement instrumental note-spacing, however. A vocal line can potentially take up far too much room if each note-value is spaced in rhythmic proportion:


instrumental spacing
6
Watch - ing those strong winds and storms, we ran through the wood

Word division

The general principle is to divide words so as to assist the singer in word recognition: both to understand what the text says, and to pronounce the correct sounds at the correct time. It is essential to divide words according to an accepted convention. Words separated carelessly are difficult to read and may even be mispronounced. It is most important to divide words in a consistent way.

Oxford University Press's *Hart's New Rules* is a useful guide for the word division of common European languages, and a starting point for division in English. However, as is the case for dictionaries and spell-checkers, such recommendations are not always of most help, since they are intended to produce appropriate line breaks in paragraphs of text. Furthermore, they do not include divisions for polysyllabic short words, since these should not be divided in a paragraph of text.

English

Extensive guidelines are given below, because, in English, word structure is so diverse and spelling so arbitrary. These guidelines work with divergent pronunciations. In some cases, division conventions vary between different publishers and setters (see *Different approaches to word division*, p. 444). However, the most important principle is to choose the same conventions for words of similar structure and to use these consistently.

SYLLABLE DEFINITION

A syllable includes no more than one vowel sound. Diphthongs (e.g. *boy*, *few*) and triphthongs (e.g. *fire*, *tyre*) are elided vowels and, for the purposes of word division, are treated as if they were single vowels. Likewise, unstressed obscured vowels are treated as an elision (e.g. *na-tion*, *tower*).

The core sonority of syllables that have no vowels at all, such as the *n't* sound in *wouldn't* or the *-tle* sound in *lit-tle*, is called a syllabic consonant.

COMPOUND WORDS

Divide compound words – i.e. words made up of two (or more) shorter words – into their component parts:

boy-hood, moon-light, out-wards

PREFIXES AND SUFFIXES

Divide off prefixes and suffixes (these comprise a verbal element that is attached to a stem to form a new word):

Prefixes include: *a-, ab-, ad-, be-, com-, con-, con-tra-, coun-ter-, de-, dis-, en-, ex-, for(e)-, il-, im-, in-, ir-, mis-, non-, out-, o-ver-, per-, post-, pre-, pro-, re-, sub-, sur-, sym-, trans-, un-, un-der-.*

Suffixes include: *-a-ble, -age, -al, -ant, -ate, -a-tion, -dom, -ed, -eer, -en, -ent, -er, -e-ry, -es, -ese, -ess, -est, -ful, -ial, -ian, -i-ble, -ic, -i-fy, -ing, -ion, -ise, -ish, -i-sm, -ist, -i-ty, -ive, -ize, -less, -ling, -ly, -ment, -ness, -or, -ous, -ship, -tion, -ure, -ward(s), -wise, -y.*

count-er-act, free-dom, in-ex-plic-a-ble, un-err-ing, writ-er

Exceptions: When adding a suffix to a stem causes the preceding consonant to double, divide between the doubled consonant:

big-gest, glad-den, run-ner, set-ting

(If the last letter of the stem is a double one, divide before the suffix: *call-ing*, *guess-es*, *stiff-est*.)

Be careful not to divide off letter combinations that are not actually prefixes or suffixes. Avoid: *gath-er*, *mis-ter* or *mist-er*, *oth-er*, *ver-y*.

(For further exceptions, see *Other polysyllables*: *Softened consonants* and *Syllabic consonants: Exception*, opposite; see also *Different approaches to word division*, p. 444.)

OTHER POLYSYLLABLES

Divide up any polysyllabic units that remain after the steps above. Carry over all consonants, provided that this results in the second syllable starting with a combination of letters that could begin an English word:

mi-stress, ma-ster, o-ther, sa-cred, ve-ry

Divide between consonants that could not start an English word and carry over the remaining consonants that could (this usually equates to dividing between consonants that are articulated separately):

al-ways, an-swer, chil-dren, in-stru-ment, mon-ster, ob-scure, twen-ty

Do not divide two consonants that form a single sound (compare *sign-ing* and *sig-nal*):

al-pha, a-wry, cough-ing, doubt-ed, e-cho, high-ly, mer-chant, mo-ther, no-thing

A doubled consonant between two vowels is normally divided:

hel-lo, let-ter, pop-py, ter-ri-fy, val-ley

(but see also *Prefixes and suffixes: Exceptions*, p. 442).

Do not break the combination *ck*. It should always end a syllable:

brack-en, fick-le

Softened consonants: Some consonants (usually *c*, *g*, *s* and *t*) soften their sound when certain vowels follow them. Carry over the consonant to the second syllable for this group (*le-gend*, *mea-sure*). This group includes taking over a consonant to a suffix that starts with a vowel:

dan-cer, gra-ces, sli-cing, ed-ges, sta-ging, ve-sti-gial, re-ven-ging, vi-sion, ac-tion, crea-ture

When consonants modify preceding vowels in exceptional ways, they should not be separated from them (*laugh-ter*, *plough-ing*). This group includes *w* and *y* when they represent the second part of a diphthong:

flow-er, stew-ard, voy-age

SYLLABIC CONSONANTS

Syllabic consonants have a singable consonant (usually the sounds *l*, *m*, *n* and *r*). Divide the text for them:

ac-re, could-n't, pri-son

Syllabic consonants ending in a consonant + *le* are divided as if they ended *-ell* instead of *-le*:

bu-gle, cir-cle, lit-tle, mu-scle, peo-ple, trou-ble, twin-kle, whi-stle, wrig-gle

Exception: A suffix added to a root that ends in a syllabic consonant is a special case. Attach the syllabic consonant to the suffix, since they now become one sound:

bu-gler, cir-cling, whi-stled, wrig-gling

For any case not covered above, divide so as to be of greatest help to the singer. Sometimes bold solutions may be called for, as in the case of the word *freer* (i.e. 'more free') when set as two syllables; the root is *free*, to which the suffix *-er* has been added, though the third *e* has been suppressed; so the most helpful way to indicate this is as *free -(e)r* or *free-er*.

DIFFERENT APPROACHES TO WORD DIVISION

The singer's first priority is word recognition. Usually, dividing compound words into their component parts will help fast word recognition. However, in English it is never going to be possible to divide all words so that they look as they will sound. When the following syllables (divided according to the guidelines above) are separated by a page or line break, a sight-reader may well mispronounce them:

a-ny, ear-ly, flow-er, hop-ing, mak-ing, ma-ny, no-thing, thou-sand, wea-ry

The singer's other priority is to place vowels and consonants exactly where marked. The eye moves forward and the singer does not want to look back for the text. For this purpose, it is most helpful to place consonants at the beginning of a syllable. Thus, some setters over-rule suffix separation by carrying over a consonant to a suffix that begins with a vowel. The setter must decide if the breaks that may result are helpful or whether the decreased word recognition may cause the singer to falter:

bra-vest, ho-ping, la-sting, re-vea-ling, wee-ping

(See also *Qualifying text sounds*, p. 451.)

While it is possible to divide syllables to indicate the quality of a consonant (as in *Other polysyllables: Softened consonants*, p. 443), it is much harder to do so for vowels. Some setters do divide selected words in such a way as to show the vowel sound. This involves attaching the consonant to the preceding syllable to suggest a short vowel: *ev-er*, *nev-er*, and taking over the consonant to suggest a long vowel: *o-ver*, *e-ven*. Thus some words containing suffixes will take over the consonant: *ri-sing*, *fi-nest*; others (sometimes of the same root) will keep suffix separation: *ris-en*, *fin-ish*. The setter must judge whether it is distracting to divide words in different ways. A decision may depend on context: decisions on an individual basis might work for a short work but be distracting to carry through on a large scale.

Latin

For the purposes of singing, divide words so as to be of most help to the singer. Grammarians recommend dividing compound words into their component parts, separating off prefixes and suffixes. However, setters frequently overrule this division, in order to place consonants where they will be sung.

The following guidelines can be followed without any particular grammatical knowledge of the language.

Divide one vowel from another:

di-es, cre-at, tu-us

unless the pair forms a diphthong. The Latin diphthongs should not be divided: *ae*, *au*, *ei*, *eu* and *oe*.

ae-ter-na, coe-li, gau-de

Carry over a single consonant:

a-mo-re, a-qua, do-mi-nus, lau-da-te, pro-xi-mus

This includes the consonantal *i* (really a *j*) as in *e-ius*, *cu-ius*, *in-iu-ri-a* (otherwise spelled *e-jus*, *cu-jus*, *in-ju-ri-a*).

An exception may be made for prefixes that end in a consonant. It may be deemed more helpful to see these prefixes unseparated in order to keep a clearer structure for the word:

ad-e-a-mus, ex-au-di-o, ob-e-o, sub-ve-ne-re, trans-ab-e-o (*not* tran-sa-be-o)

(When a prefix ends in a vowel, it would normally be separated as a matter of course by following the other guidelines given.)

CONSONANT GROUPS

Divide a double consonant:

an-nus, il-la, mis-si-o, ter-ra

Do not divide consonants that form a single sound. Carry over both. This group includes all consonant + *l* or *r* combinations, which should be attached to the following vowel:

a-scen-do, con-fla-gro, la-cri-ma, pa-tris

For other combinations, practice varies regarding the division of two or more consonants. Sometimes there are two equally valid divisions (but these should not be mixed).

It is often helpful to divide between consonants that form separate sounds: *l*, *m*, *n* and *r* are almost always divided from a following consonant (*mn* is an exception – see first example, p. 446):

an-ge-lus, at-que, in-ter, mun-do, par-te, pul-cra, sal-ve, sem-per, ver-bum

The nature of the setting may dictate division in other consonant groups. It is recommended that if consonants are sung together, they are placed together. Carry over as many consonants as possible to the beginning of a syllable.

Thus they appear exactly where the singer will place them. This is helpful in a melismatic setting, i.e. where syllables may be spread over a system or page break:

fa-ctus, ho-ste, i-pse, ma-gnus, no-strum, o-mnis, pro-pter, san-ctus

The other option is to carry over fewer consonants, dividing between two when there are only two. In syllabic setting (e.g. one syllable to one note) the separated syllables will be close together on the page and the singer can usually see the entire word in a glance:

fac-tus, hos-te, ip-se, mag-nus, nos-trum, om-nis, prop-ter, sanc-tus

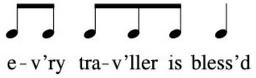
The likely pronunciation might even be a factor; for instance, *ag-nus*, *ig-ne* (with a hard *g* – two separate sounds – in German Latin) or *a-gnus*, *i-gne* (with a modified *ñ* sound in Italian Latin).

Avoid *fact-us*, *magn-us*, *omn-is*, *sanct-us* (or *sa-nctus*): these divisions do not help the singer to place the consonants correctly.

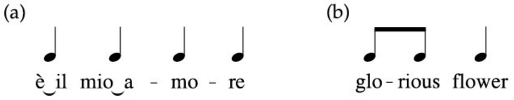
Syllable elision

Especially in older music, an apostrophe replaces a vowel that has the potential to elicit a separate syllable (e.g. *called* written as *call'd* in order not to be interpreted as *call-èd*). This practice clarifies the intended result.

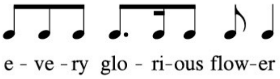
Divide the word according to normal rules: carry over consonants as if the replaced vowel were present. Thus the consonants of the two syllables are placed together, i.e. where they will be elided:



An elision sign (like a small tie) is placed beneath the text to indicate where two (or even three) syllables are to be elided (a). The slur is unnecessary for elision within a single word – as long as hyphenation is correct, the elision is obvious (b):



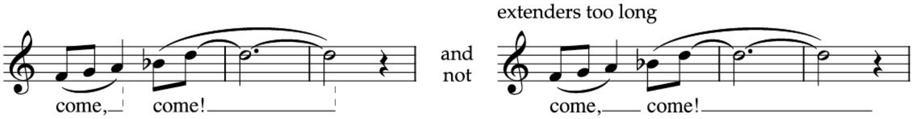
Always use a hyphen to separate syllables that could otherwise be elided:



Extenders

An extender, a line of stave-line thickness, follows a final syllable or monosyllabic word that extends beyond one written note, including a tied note.

The line extends to the last written note, but not to the end of the duration. Any punctuation goes at the end of the word, before the extender:

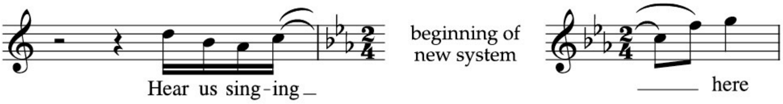

come,
come!
and
not
extenders too long
come,
come!

Place the extender on a level with the base of the text; it should not be centred like a hyphen (see *Hyphens*, p. 448).

When there is a change of key or time signature at the end of a system, the extender stops with the barline (see following example).

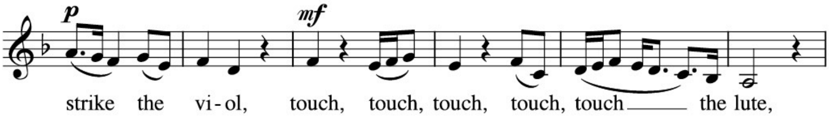
If an extender starts at the very end of a system, allow extra space before the barline so that there is room to place the beginning of the extender at the end of the word.

At the beginning of a system, the extender starts just before the first note, together with the slur or tie:

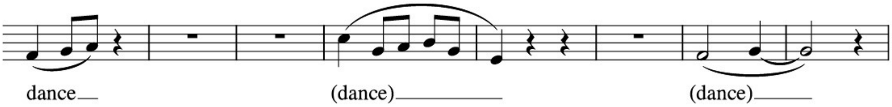

Hear us sing-ing
beginning of
new system
here

No extender is needed where a syllable occupies the length of its written duration nor where a single syllable is sung to one note alone:

Purcell: *Come, ye Sons of Art*

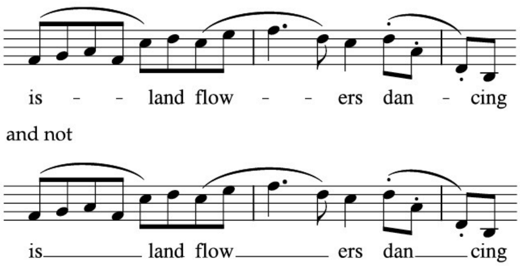

p
mf
strike the vi-ol, touch, touch, touch, touch, touch the lute,

Where there are short rests within the span of a single syllable, continue the extender uninterrupted under the rests until the last written duration of the syllable: see example *Syllable spanning rests*, p. 435. Where there are longer rests, discontinue the extender and reiterate the word or syllable in brackets (the brackets indicate that the text is not reiterated afresh):

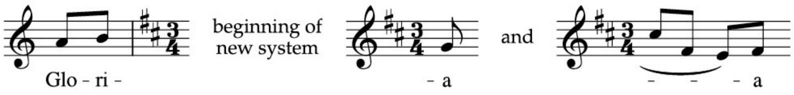

dance
(dance)
(dance)

Hyphens

The hyphen is a short line centred between two syllables. Its purpose is to indicate that the two syllables surrounding it are part of the same word. A hyphen should be placed midway between the base and top of a lower-case letter, and not at the base of the text, where it will be mistaken for an extender. Never use an extender between syllables – an extender indicates that a word has ended and its incorrect use will cause confusion:


is - - land flow - - ers dan - cing
and not
is land flow ers dan cing

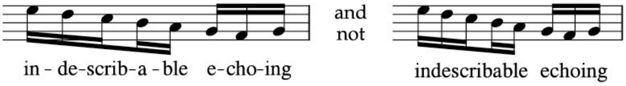
A word divided over a system break takes a hyphen at the end of the first system. When the syllable is completed on the first note of the new system, it is clearest to add another hyphen (although some editions omit this). When the next syllable comes later than the first note of the system, add hyphens:



Note that when there is a change of key signature or time signature at the end of the system, the hyphens should stop short of the barline.

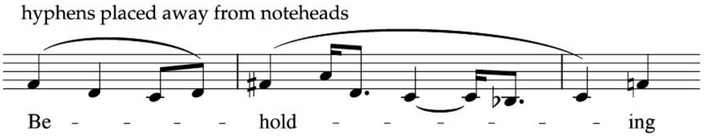
OMITTING HYPHENS

It is acceptable to omit a hyphen between a two-syllable word to save space, provided that the word cannot be elided into a single syllable in error (see *Syllable elision*, p. 446). However, hyphens always clarify text underlay. It is essential to divide words of more than two syllables with hyphens:

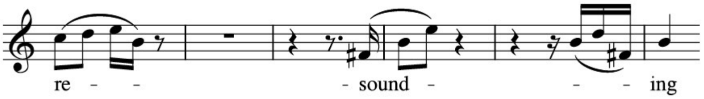


HYPHEN SPACING

Place hyphens at regular intervals between widely spaced syllables (avoid positioning a hyphen directly below a note, since it may look like a tenuto line):


hyphens placed away from noteheads
Be - - - - hold - - - - - - ing

Where a divided word spans rests, place hyphens before and after rests but not through long periods of rests:



When one syllable of a multisyllabic word spans several rests, repeat the syllable in brackets after each rest period, matching the notation given to an extender that spans rests (see last example under *Extenders*, p. 447).

Alternative text underlay

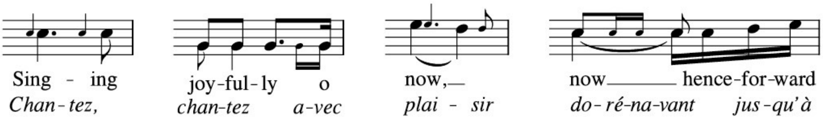
In verse format, all verses can be underlaid below a vocal line as long as there is only the occasional rhythmic deviation from the first verse. If verses have more than the occasional rhythmic differences, set out each verse separately where space allows, to avoid too much complexity. It is possible to accommodate one alternative rhythm on the same stave. A third alternative requires an additional cue-sized stave.

When a second language is used, the language given first depends on the purpose of the edition. Present the original (or preferred) language in roman type closest to the stave, with the second language beneath in italic. A third language would be in roman type.

Text for a refrain in a single-language edition may take italic type.

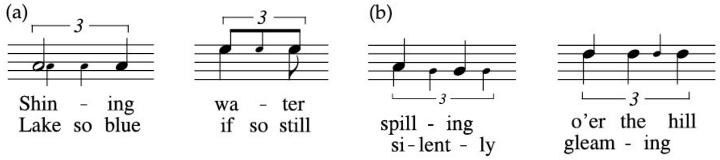
ALTERNATIVE RHYTHMS

The first verse or the first language (the principal text) takes ordinary stem directions. The alternative rhythm takes cue-sized notes with opposite stem directions. Both rhythms share full-sized noteheads except when one part is dotted. Place the alternative rhythms after the main note, except when it is the main note that has the dot. Both rhythms share a notehead even when one part is tied, although the alternative rhythm requires its own cue-sized stems (fourth example – see also *Different numbers of syllables*, p. 450):



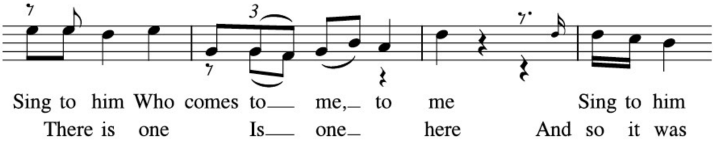
It is also acceptable to use up-stems for all principal-text rhythms, and down-stems for all alternative rhythms. This style may be more straightforward to the eye, should flipping stems be too distracting. (Examples (a) and (b) in the section *Different numbers of syllables*, below, use this style for comparison purposes.)

Tuplets: When a tuplet sign refers to both rhythms, place its indication above the stave, as is normal in vocal music (a). When only one of the two rhythms is a tuplet, the indication must go to the stem side of the rhythm (b):


(a)
3
Shin - ing
Lake so blue
3
wa - ter
if so still
(b)
3
spill - ing
si - lent - ly
3
o'er the hill
gleam - ing

RESTS

Where rests occur, both parts must have complete bar lengths. The alternative rhythm takes cue-sized rests:

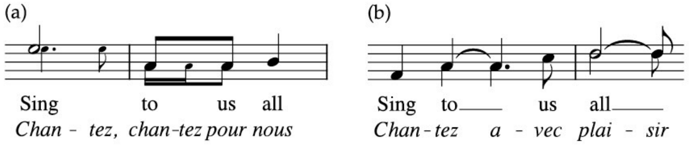

3
Sing to him Who comes to__ me,_ to me Sing to him
There is one Is__ one_ here And so it was

DIFFERENT NUMBERS OF SYLLABLES

Some editions use a simple system: all rhythms that are required by one or other of the texts take full-sized notes; dotted ties and dotted slurs are used for all instances where a tie or slur does not apply to all verses or languages. The resulting notation is as in example (c) opposite.

However, most editions give priority to the principal text in the following ways.

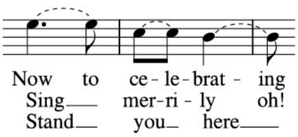
Where the alternative text has a greater number of syllables, the alternative line takes extra note-values – all down-stems in the following example (a). This includes situations where the principal part is tied (b):


(a)
Sing to us all
Chan - tez, chan-tez pour nous
(b)
Sing to___ us all___
Chan - tez a - vec plai - sir

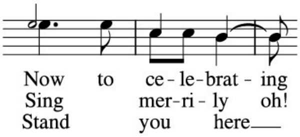
Where the alternative text has fewer syllables, there are two possible layouts.

One style (particularly suited to simple rhythms) is to use a dotted tie to show elided notes in the alternative rhythm. This may be the easiest notation to read, except that dotted ties mid-stave lose some legibility (c). The other style is to use extra note-values for the alternative text (d):

(c)


Now to ce - le - brat - ing
Sing mer - ri - ly oh!
Stand you here

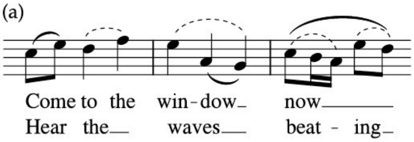
(d)


Now to ce - le - brat - ing
Sing mer - ri - ly oh!
Stand you here

SYLLABIC SLURS FOR ALTERNATIVE TEXT

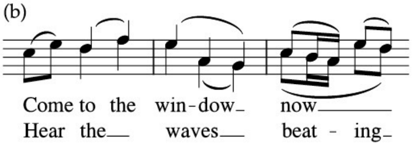
When the principal text requires a syllabic slur, use a solid slur. Slurs exclusively for the alternative text are dotted. The shorter of two slurs goes closest to the notes (a). As with the notation of different numbers of syllables (above), some (especially older) editions use two parts rather than dotted slurs – this is not necessary as it adds extra information to the stave (b):

(a)


Come to the win - dow now
Hear the waves beat - ing

rather than

(b)


Come to the win - dow now
Hear the waves beat - ing

Qualifying text sounds

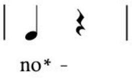
A pronunciation guide is necessary for text in an obscure language or dialect, or to define text sounds of a transliteration or a non-syntactical (or 'nonsense') text. Pronunciation may be notated using the International Phonetic Alphabet, as given in a standard dictionary. Most professional singers are familiar with this (see extract from Ligeti's *Aventures*, p. 459).

Alternatively, qualify the sounds according to a familiar language. Indicate in the preface some reference system, e.g.:

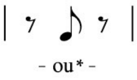
> The following sounds are pronounced:
> *a* as in the English *cat*
> *ch* as in the Scottish *loch*

This second method of description is appropriate for amateur singers, who may be unfamiliar with the International Phonetic Alphabet.

When the syllables of a word are divided between different voice parts and the complete word is not obvious, qualify the sound of an isolated syllable by providing the whole word in a footnote. This ensures correct pronunciation:

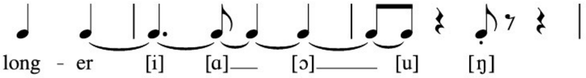


* *no* as in *nothing*

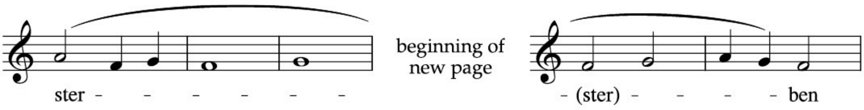


* *ou* as in *trouble*

Text sounds without linguistic meaning (referred to below as phonemes) that are independent of surrounding text may be isolated in italic, where necessary, to avoid confusion with the text (see example (b) under *Humming*, p. 455). However, many editions do not make this text-style differentiation, preferring to reserve italic for expression marks. The phonetic letters may be placed in square brackets instead:



After a page-turn, it is useful to confirm the syllable of a long melisma by repeating it in round brackets. The brackets indicate that the syllable is not reiterated afresh. This helps the singer to maintain the quality of the vowel:



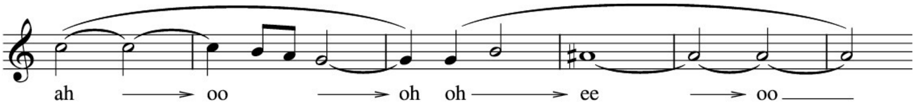
Changing vowel sounds

The notation below requires verbal definition at the front of a score or in a footnote at its first appearance.

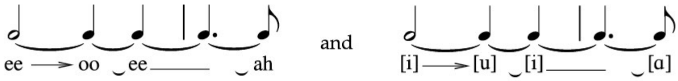
To indicate a gradual change of vowel, place an arrow between vowels. The arrow also shows the length of the transition between one vowel and the next (and replaces an extender).

Each note of unchanged pitch may be tied, to indicate that there is no separate articulation even though there is a vowel change. (This exceptional use of ties between changing text sounds applies to the following two examples and the first two under *Sustaining consonant sounds*, pp. 453–4, as well.)

Syllabic slurs have been omitted from the following example to avoid confusion. They have been replaced by phrase marks, more helpful in the present context:



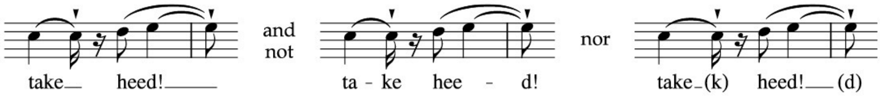
A short elision sign may be used to alert the singer to the sudden change, i.e. after a gradual transition:



Placing consonants

FINAL CONSONANTS

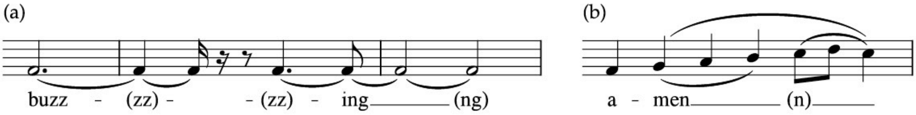
To indicate an emphatic final consonant, place an articulation mark (staccato dot or wedge, or accent) on the final note. It is unnecessary to separate the final consonant from the rest of the word and to write it at the end of the duration, where the singer will place it anyway. Single-syllable words will become distorted when divided up, which is particularly unhelpful:



SUSTAINING CONSONANT SOUNDS

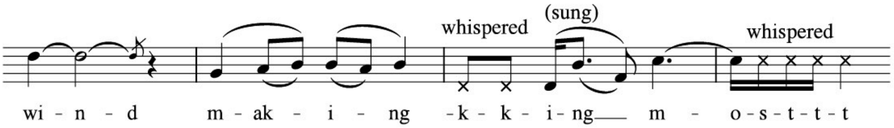
The dividing of a single syllable instructs the singer to sing on the separated consonants. It is often clearest to notate the whole syllable first, so that the word is immediately intelligible, then to add the consonants in round brackets where they are to be placed. The brackets clarify that the consonants are not articulated in addition to the whole syllable, as do ties between held pitches (see (a) below).

When the consonant sound has more than one pitch, use separate syllabic slurs to clarify the duration of the sustained consonant; a second set of slurs indicates that there is no break in sound from the previous vowel and makes it easier to see the whole syllable (b):

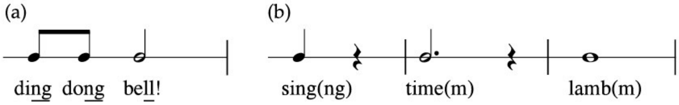


Without brackets, each written consonant sound is separately articulated.

It is equally acceptable merely to divide the word according to how it will be sung – although sometimes the text is then less recognizable at first glance. When consonants are repeated, this method is simplest. Each repeated articulation requires a repetition of the consonant (or vowel) – see last bar:



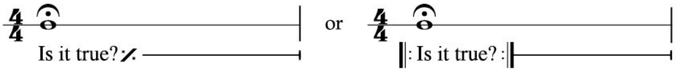
For immediate transition to a sustained consonant, underline the consonant; this notation requires verbal clarification in a footnote, such as 'close onto final consonants immediately' (a). Alternatively, place the consonant in brackets after the syllable (b). This latter notation is especially useful when the consonant is not the final letter of the word:



Repeated text sounds

FREELY REPEATED TEXT

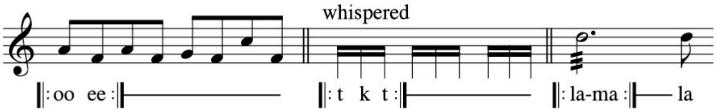
Text to be repeated freely may be followed by a repeat-bar sign or enclosed in repeat barlines:



For unmeasured chanting on a monotone, notate a single note-value for the duration of the chanting. Place all the text below. It is usual to extend the bar length to accommodate the extent of the text, but where this is impractical, block it onto more than one line.

REPEATED PHONEMES

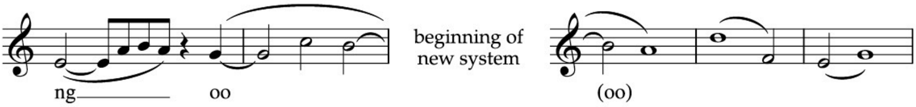
Repeated phonemes or fragmented syllables may take unconventional treatment. Enclose them in repeat barlines:



When syllables are recognizably part of the setting, repeated text should be written out in full (see *Presenting the text in the music*, p. 438).

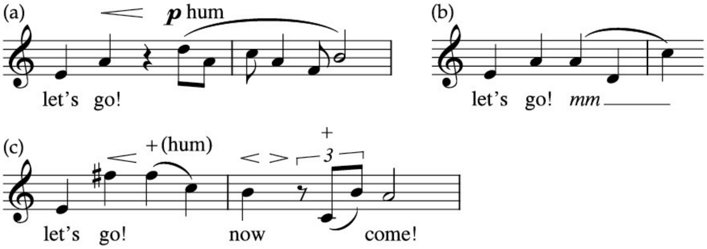
Wordless singing

A specific vowel or closed consonant (*m*, *n*, *ng*) is placed in the text location and is normally followed by an extender for its duration. For a lengthy passage, omit the extender but repeat the phoneme in brackets at the beginning of a new system as a reminder. Each rearticulation of a sound requires either a restated phoneme, or a new phrase mark (performing the function of a syllabic slur):



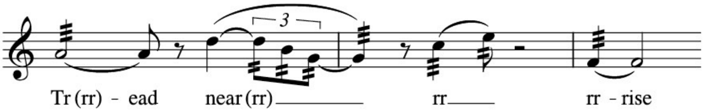
Humming

Humming is indicated by a verbal instruction *hum* or *bocca chiusa*, abbrev: *b.c.* (Italian, 'mouth closed'). It is important to place the instruction above the stave, so that the singer does not articulate it as if it were sung text (a). Where there is frequent alternation with text, two other methods of prescribing humming are useful. To give *mm* in place of text requires no instruction and is immediately conspicuous (b). Alternatively, the closed-mouth symbol '+' may be substituted, placed above the stave; this symbol should be defined at its first appearance (c):



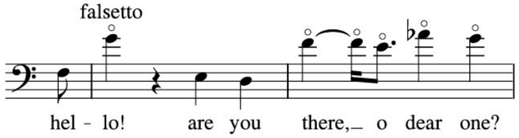
Flutter-tonguing

This is the rolled 'r' and is written into the text as *rr*. Place brackets around it where it occurs in the middle of a word, so that the text remains intelligible; brackets are otherwise unnecessary. Tremolo indications (as used for woodwind and brass flutter-tonguing) clarify the notation:



Falsetto

A harmonic circle should indicate falsetto over the relevant notes. For clarity give the instruction *falsetto* at its first appearance:

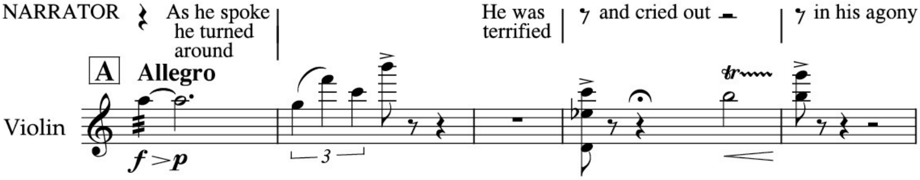

falsetto
hel - lo! are you there, o dear one?

It is also acceptable to use diamond noteheads for falsetto as long as there is an accompanying explanation. However, if a piece employs various vocal effects, it may be useful to reserve the diamond for another technique (see *Voiced and unvoiced sounds*, p. 458).

Speech notation

Unmeasured spoken text

A spoken part for a narrator does not usually require a stave (but see also *Spoken text in rhythm*, opposite). Separate the text into the phrases or sentences above the bar during which it should be spoken. Block it into two or more lines so that it fits into the appropriate musical space. Rests and barlines may be added if timing is critical:


NARRATOR
As he spoke he turned around
He was terrified
and cried out
in his agony
A
Allegro
Violin
f > p
3
tr

(For position of a narrator's part in a score, see *Part for a narrator*, p. 465.)

SPOKEN TEXT IN A VOCAL PART

Occasional spoken text in a singer's part is placed in the normal position for text – below the singer's stave. Leave the stave blank (do not add rests).

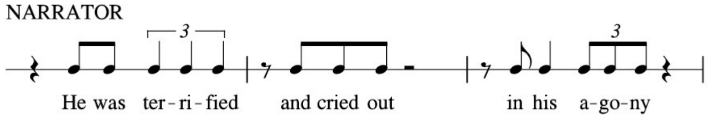
Extended entries of spoken text may be placed in the position of the vocal part but without a stave.

Spoken dialogue that has no instrumental accompaniment may be set out without any staves at all.

Spoken text in rhythm

NARRATOR'S PART

Rhythms for spoken text may be notated on a single line, using ordinary noteheads:

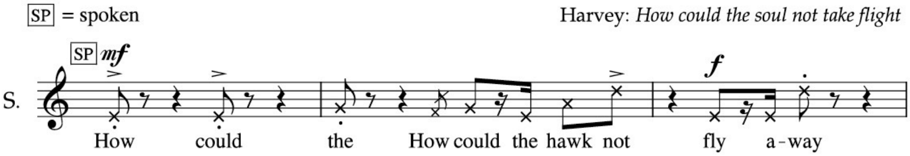


If deemed necessary, a performance note may clarify whether the text is spoken with natural speech inflection (and not as a monotone).

SINGER'S PART

Use crossed noteheads to indicate spoken text, to contrast with ordinary noteheads for sung pitches. The crossed noteheads may be placed in varying positions on the five-line stave to indicate pitch levels or simply their relative rising or falling. An explanatory note should state the required degree of pitch precision: e.g. 'speak at the given pitches' or 'the position of crossed noteheads on the stave represents relative rising and falling of undefined pitch'.

In addition, give a verbal instruction (*spoken/shouted*, etc.) to clarify when there is no implied sung pitch content, since crossed noteheads may also be used in vocal music to represent *Sprechstimme* (see *Styles between speech and singing*, p. 458):


SP = spoken
Harvey: *How could the soul not take flight*
SP mf
S.
f
How could the How could the hawk not fly a-way

Alternatively, one or more lines may replace the stave to represent different vocal registers (see *On a line or grid*, p. 641). Consequently spoken or unvoiced sounds may appear consistently without a five-line stave – a useful contrast to sung passages (see extract from Ligeti's *Aventures*, p. 459).

Note that it is unhelpful for a singer (as opposed to a narrator) to see noteheads for spoken pitch placed in a single-pitch position on a stave or on a single line, as if there should be no variation in pitch. This notation should be used for only reciting on a monotone.

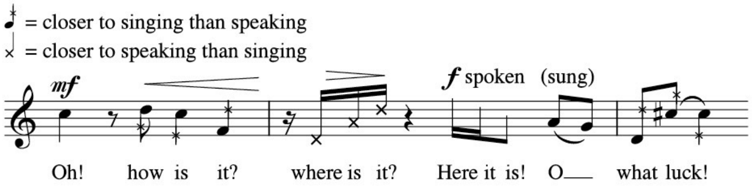
Stems without noteheads may be used for speech notation, either to represent voiced or unvoiced sounds, as, for instance, where a crossed notehead represents another technique such as *Sprechstimme* (see following example). However, rhythms of stems alone can be hard to read unless they appear as beamed groups (see *Stems without noteheads*, p. 640).

Styles between speech and singing

Styles of delivery between speech and singing may be defined verbally above each respective entry. *Quasi parlando* ('as if speaking') or *quasi recitando* ('as if reciting') indicates a singing style of speech-like quality. Relative terms may also be used, such as *increasingly sung/full-voiced*, *close to speech*, etc.

Schoenberg experimented with various symbols to express styles of delivery between speech and singing. The symbol (as used in *Pierrot Lunaire* and originally defined as *Sprechton*, 'speech-tone') is now used universally to define a style between speech and singing and identified with Schoenberg's use of the term *Sprechgesang*.

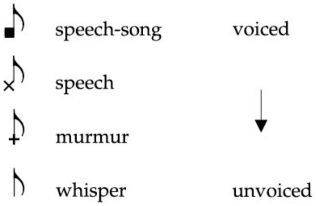
In later pieces, Schoenberg defined the crossed notehead as *Sprechstimme* ('speech-voice'), to indicate a style closer to speech than to song. Since the crossed notehead has been widely adopted to represent speech as well, its role should be clearly defined in either context, as shown below. The following notation is recommended:


= closer to singing than speaking
= closer to speaking than singing
mf
f spoken
(sung)
Oh! how is it? where is it? Here it is! O___ what luck!

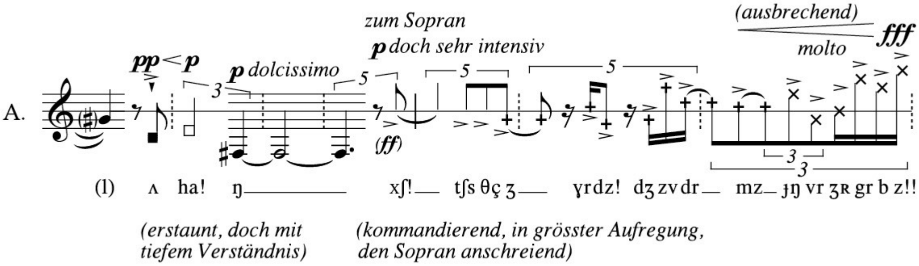
Voiced and unvoiced sounds

When spoken ('voiced', Italian: *parlando*) and whispered ('unvoiced', Italian: *sussurando*) sounds occur in the same piece, it is helpful to have contrasting notehead shapes. This avoids the necessity for repeated definitions. Give a definition for each notehead type at the outset and at its first appearance, as a reminder (see first example on p. 460).

The norm is to choose notehead shapes that graphically 'reduce' the notehead as pitch is reduced out of the voice. Ligeti uses the following noteheads in *Aventures*:


speech-song
voiced
speech
murmur
whisper
unvoiced

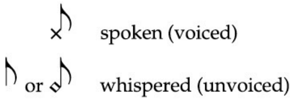
These are applied in the following way:


Ligeti: *Aventures*
A.
pp < p
p dolcissimo
zum Sopran
p doch sehr intensiv
(ff)
(ausbrechend)
molto
fff
(1) ʌ ha! ŋ
xʃ! tʃs θç ʒ ɣrdz! dʒ zv dr mz ɟŋ vr ʒʀ gr b z!!
(erstaunt, doch mit tiefem Verständnis)
(kommandierend, in grösster Aufregung, den Sopran anschreiend)

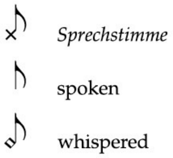
(Note that the two forms of crossed notehead may appear too similar and the singer might not notice the change: therefore a verbal reminder at relevant points should accompany this notation.)

Common definitions

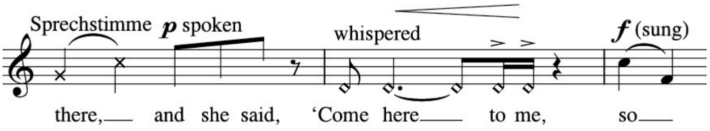
When *Sprechstimme* is not employed, the crossed notehead may define 'spoken' notes:


spoken (voiced)
or
whispered (unvoiced)

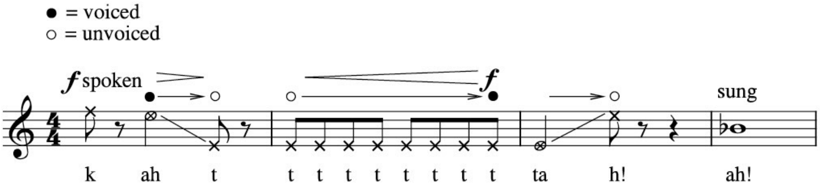
Where both *Sprechstimme* and spoken delivery are required, the crossed notehead can no longer represent 'spoken notes':


Sprechstimme
spoken
whispered

It is usual to place 'whispered' notes at the bottom of, or below, the stave, and voiced sounds higher up on the stave:


Sprechstimme
p spoken
whispered
f (sung)
there, and she said, 'Come here to me, so

To indicate a transition between voiced and unvoiced sounds, either use verbal instructions or else place the following symbols above the stave, with an arrow centred between the symbols to indicate the length of the transition. Using these symbols, all 'spoken' (as opposed to 'sung') sounds may have crossed noteheads, since the open and filled-in circles describe whether or not the sounds are voiced:

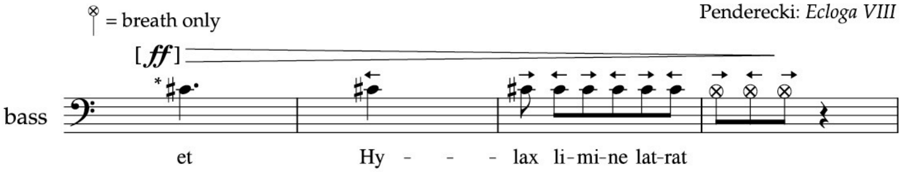

● = voiced
○ = unvoiced
f spoken
f
sung
k ah t t t t t t t t t ta h! ah!

Non-text sounds

INHALING AND EXHALING

An arrow placed above a note may indicate audible inhalation and exhalation while singing; a backward arrow indicates inhaling, and a forward arrow indicates exhaling:

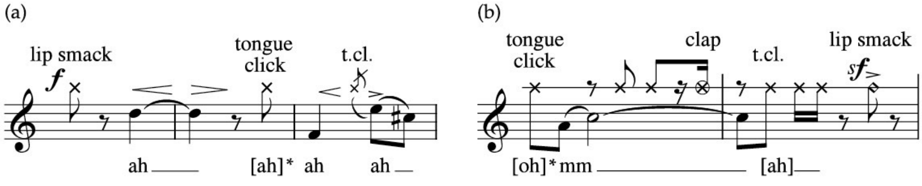
Penderecki: *Ecloga VIII*


= breath only
[ff]
*
bass
et Hy - - - lax li-mi-ne lat-rat

* proportional spacing within bar

OTHER EFFECTS

Other effects – tongue clicks, coughing, finger snaps and so on – should be indicated with a contrasting notehead and be placed outside the stave. It is acceptable to use a crossed notehead for all these effects (if this symbol is not required for spoken or whispered text) and to define each technique with a verbal instruction at each entry (a). Alternatively, choose a different notehead for each technique, each symbol being defined as it appears (or in a preface). When there is more than the occasional vocal effect, and when the singer is asked to produce percussive sounds while singing (e.g. clapping), place the contrasting noteheads on a separate line above the stave, for the sake of clarity (b):



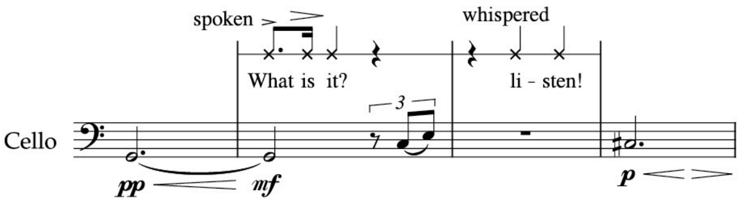
* form this mouth shape for tongue click

(See also *Performance instructions*, p. 491.)

Vocal sounds from instrumentalists

Spoken or sung tones may be produced through some woodwind and brass instruments (see *Vocal sounds through an instrument*, p. 250). Any player may be asked to create vocal sounds independently of his or her instruments.

Spoken part: Spoken text that occurs simultaneously or alternately with played notes should appear above the stave, to be clear of played dynamics. Place rhythms for the spoken part on a line or stave, with ordinary or perhaps crossed noteheads, so that the spoken part looks completely different from played notes:



Where space is limited, place crossed noteheads on the playing stave (crosses through stems are best for extended use, as the noteheads are then easier to read).

Vocal pitches: differentiate vocal pitches with cue notes or different-shaped noteheads, and label the entry *sing* or *hum*, as appropriate. Where both voiced and played parts would be unclear on a single stave, create a lower stave for the vocal notation and use conventional noteheads (see *Vocalizing while playing*, p. 250).

CHORAL WRITING

Format

Traditionally, printed music measures 10 × 7" (254 × 178 mm). For singers who must hold their own scores (including choir members, who must stand close together in performance), the page size should be no larger than A4 unless absolutely necessary (see *Page sizes and formats*, p. 481). Avoid landscape format, which is difficult to hold.

(See also *Performance conditions*, p. 557.)

Labelling choral forces

Voice labels *soprano, alto, tenor and bass*, and so on, may be abbreviated to SATB, even in titles. Two of the same voice part take a double abbreviation: SS indicates there are two independent soprano lines throughout. (Note that the occasional divided phrase in a voice part does not constitute two parts.)

Specify the number of voice parts in the title, together with an indication as to whether or not the piece is accompanied.

Choir describes works in which each part is sung by a number of voices; the term is always used to describe a work intended for liturgical use, and usually to refer to a work for a small group of professional or trained singers. *Chorus* usually describes works for a large group of singers.

(See also *Front matter (Preface pages)*, p. 502; also, *Matching information for all materials*, p. 501.)

LABELLING THE STAVES

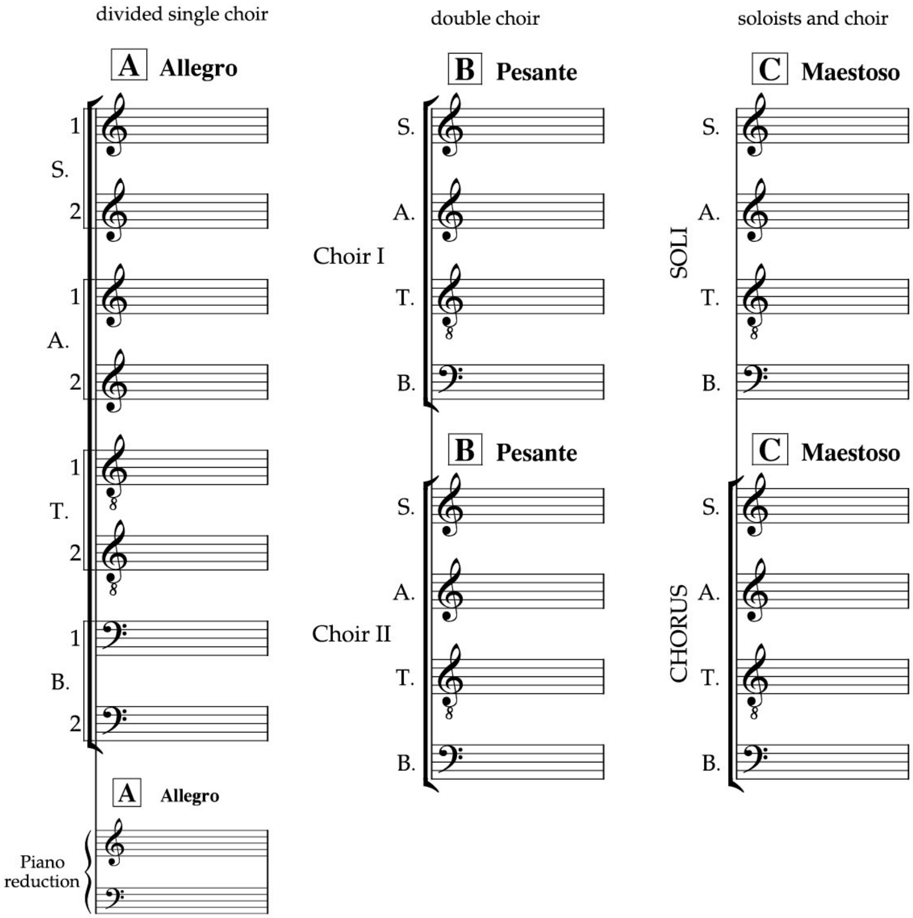
Add voice labels in the indented opening system's margin (these are usually given unabbreviated). When the layout remains the same throughout, labels are unnecessary beyond the opening system. Where a layout changes, label each stave throughout, for clarity (see *Changing stave layout*, p. 468). Use letter abbreviations for each voice part. A divided part is also labelled by number: e.g. two soprano parts = S1 and S2.

Layout of choral staves

Allocate a stave for each voice part; the highest voice is at the top of the score.

Join all choir staves with a square margin bracket. Even where there is a single choir stave, this should take a square bracket. Enclose adjacent staves of

TABLE 1: Layout of choral forces


divided single choir
double choir
soloists and choir
A Allegro
S.
1
2
A.
1
2
T.
1
2
B.
1
2
A Allegro
Piano reduction
B Pesante
Choir I
S.
A.
T.
B.
B Pesante
Choir II
S.
A.
T.
B.
C Maestoso
SOLI
S.
A.
T.
B.
C Maestoso
CHORUS
S.
A.
T.
B.

the same voice part with a secondary bracket: see Table 1. (The curly brace is very conspicuous for this purpose, although it appears cumbersome joining more than two staves – see *Curly braces*, p. 514; see also *Layout with soloists*, p. 464.)

BARLINES

A barline at the left-hand edge of the system (the systemic barline) connects the whole choir and any accompaniment staves. Otherwise, each vocal stave always has separate barlines, to avoid intersecting the text.

STAVE LAYOUT FOR DIVIDED CHOIR

The stave arrangement should reflect the choir grouping. 'Two choirs of four parts' (i.e. double choir) implies a different stage set-up from 'one choir of eight voices' (divided single choir).

For a divided single choir, each divided voice part takes a group of adjacent staves. (The divided parts can be amalgamated onto a single stave for unison passages or systems of bars' rest.)

For separate choirs, group the voices of each choir separately and allocate them individual margin brackets. On the first page, label each group in the margin: *Group/Choir I/A, II/B*, etc. Thereafter, if the number of staves per voice part remains the same throughout, labels are only necessary for the re-entry of a choir's staves after rests (see Table 1, p. 463). If there is a change of stave layout, label the staves at each change.

In choral works, it is often desirable to retain one stave for each voice part, even if a voice is silent for the whole system. This enables each singer to identify his or her vocal line from its position within the system. In this case, a stave should be omitted only if it is silent for an extended passage. (Where practicalities require as compressed a layout as possible, *tacet* staves may have to be omitted so that a greater number of systems can be fitted onto a page.)

Layout with soloists

A soloist who is not necessarily taken from the chorus – or a character in a stage work – has a separate stave above the chorus. Staves for soloists remain without margin brackets, to distinguish them from chorus lines. Centre margin labels *soli/soloists* and *chorus* on the relevant groups of staves: see Table 1, p. 463.

Solo staves need only appear when required (see also *Layout with characters (Stage works)*, p. 470).

A solo part within the choir is written either on a stave above its voice part (where a secondary margin bracket joins it to the choir part: see extract from Searle's *The Canticle of the Rose*, p. 476); or, if the rest of the voice part is silent, on the same stave.

Mark a solo line *solo*. When the solo stave is no longer needed, or the rest of the voice part re-enters, label the stave *tutti*. These labels may be given in capitals, to be as conspicuous as possible (as in the example under *Different divisions*, p. 467).

Part for a narrator

In an orchestral or large ensemble score, a spoken part is usually placed above the strings (above tempi and rehearsal marks). Where the score contains chorus or solo voice parts, the narration may appear above them. If words are underlaid to a rhythm in any portion of the work, then the entire narration part should be placed where a vocal part would be (above any actual vocal staves present). If preferred, it may be placed at the top of the score (above tempi and rehearsal marks, to be clear of them). In a small ensemble work, narration should appear at the top of the score.

(See also *Speech notation*, p. 456.)

Placing time signatures, tempi, performance instructions and text underlay

Time signatures: these must be placed on every stave at their outset, so that each singer following his or her own line does not overlook them. A large time signature above a group of staves is no use in choral music.

Tempo markings: place these at the top of the system (not above individual staves) so that they are clear of sung text. However, in a multiple-stave system, additional tempo markings are useful: when there are soloists and chorus staves, above the chorus parts; when the choir is divided into separate groups, above each choir (see Table 1, p. 463). Tempo markings should also be placed above a keyboard accompaniment (see extract from Bruckner's Mass in D minor, p. 471).

Dynamics, expression marks and technical instructions: place these above each individual stave so that each singer can see them immediately (avoid a single instruction above the top stave, as this will most certainly be overlooked). Ensure that all instructions are clear of the text allocated to the voice part above.

Text underlay: each stave should have its own text underlay. Only in chorale-style music, where adjacent staves are in rhythmic unison, is it acceptable to share underlay (see *Two-stave SATB layout*, p. 468). It is awkward to read underlay above the music, since its customary position is below the stave. It is not acceptable to place a first verse text below the soprano and tenor lines, and a second verse below the alto and bass lines, as some old Bach editions do.

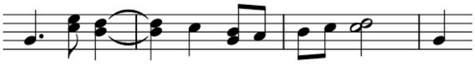
(See also *Bar numbers*, p. 484, and *Rehearsal marks*, p. 484.)

Voice-part division on a single stave

IN RHYTHMIC UNISON

A divided voice part in rhythmic unison should take a single set of stems. This keeps the stave uncluttered. (The fewer stems the chorister has to read the better: he or she also needs to read the text and look at the conductor at the same time.) It is assumed, and quite obvious, that a single note is a unison – there is usually no need for double stems or a 'unison' indication:

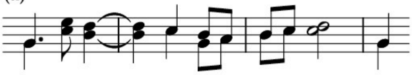
recommended



Some editions prefer to use double stems throughout a passage for an alternating divided and unison voice part, as a divided orchestral string part would do (for orchestral stemming conventions, see *Stave sharing: Unisons*, p. 526). Others use two stems to confirm that single notes are unison when divisions and unisons alternate in quick succession (a); others double-stem only the divided part (b):

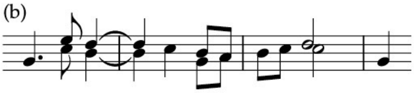
optional

(a)



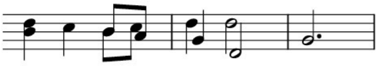
rather than

(b)



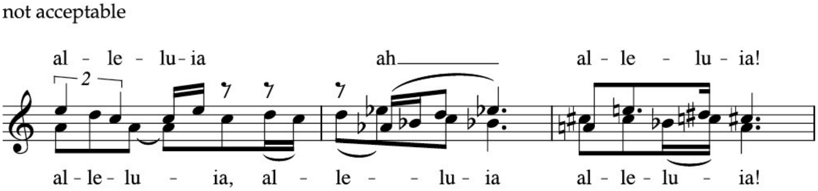
Note that the extra down-stems will force text further from the stave.

Occasionally separate stems are useful to clarify part writing, such as where there is a succession of adjacent notes (see Searle extract, alto part, p. 476). Otherwise, separate stems are needed only for beats in which the parts overlap:



WITH OCCASIONAL RHYTHMIC DIVISION

A divided part on one stave should not have more than the occasional different rhythm. Two stems are necessary only for the beats with individual rhythms, although a preceding and subsequent note in rhythmic or melodic unison may also take double stems (see dotted crotchets, bars 2 and 3, below). The following is too difficult to read and will invariably cause confusion:



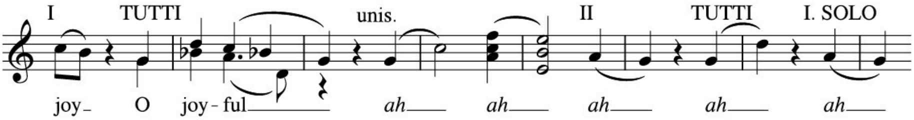
DIFFERENT DIVISIONS

When only one half of a divided voice part sings, there is no need to include rests for the *tacet* part as long as the part is labelled 1./I and 2./II.

It is acceptable to have a voice-part division into three or more parts for an occasional note but not for a more extended passage. A moving middle part is difficult to follow; instead, transfer a third voice to a second stave. Use a single stem for all notes in rhythmic unison (see bars 4–5, below).

Division and unison indications (*div.* and *unis.*) should be given only when they are not obvious from the context. A *unis.* indication clarifies the forces for a single line after a divided part either involving rests for one division or after a layout on two staves.

Use a *tutti* indication only after a passage for a solo or for fewer than all voices:

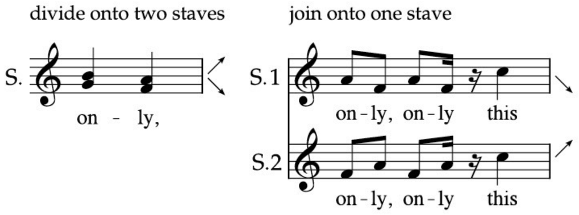


ACCIDENTALS

It is essential to place an accidental beside each voice part in turn, since a singer follows only the one line and may not notice an accidental given earlier in the bar for the other part on the stave (see bar 2, above; see also *Accidentals relevant to more than one part on a stave*, p. 79).

CHANGING STAVE LAYOUT

When a voice part changes between one and two (or more) staves, label each stave. It is also helpful to place angled arrows at the end of the staves, to emphasize the layout change (see also *Labelling the staves*, p. 462):


divide onto two staves
join onto one stave
S.
on - ly,
S.1
on - ly, on - ly this
S.2
on - ly, on - ly this

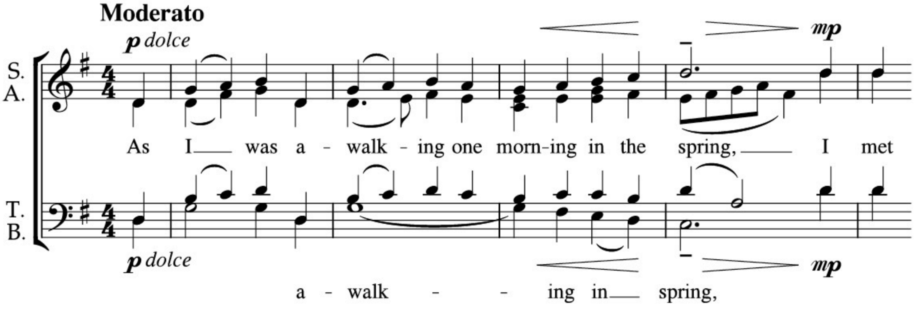
Two-stave SATB layout

Two-stave layout is suitable for choral writing in which the four parts move predominantly in rhythmic unison and thus share the same text underlay.

Soprano and alto parts share the upper stave, tenor and bass the lower stave. Ideally each voice part takes separate stems throughout so that if there are different rhythms, or one part divides, all four parts consistently have individual stems. Where space is limited, the voice parts on one stave may take single stems. For an extended passage of melodic unison, the voices should share stems, and be labelled *S.A. unis.* or *T.B. unis.*

Centre the text between the two staves. If one voice part has a different rhythm, place a separate underlay at the stem end of the individual part, beyond any dynamic markings. Include only the individual phrase that deviates from the main underlay (see example below).

Place dynamics and expression marks above the treble stave and below the bass stave, to apply to both voices on each stave. If a voice part requires separate dynamics, then it is best to place all voices on separate staves, since it is confusing to have two sets of dynamics for one stave. Place articulation and syllabic slurs at the stem end of all parts:


Moderato
p dolce
mp
S.
A.
As I was a - walk - ing one morn-ing in the spring, I met
T.
B.
p dolce
mp
a - walk - - ing in spring,

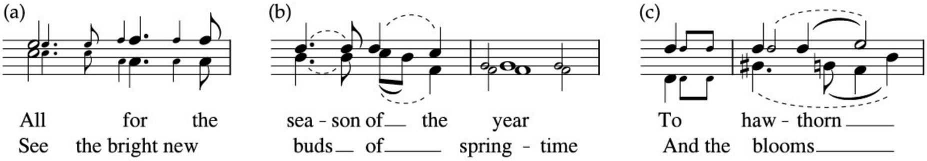
Alternative text layout

When the two voice parts on one stave are in rhythmic unison and share stems, cue-sized notes indicating alternative rhythms can take opposite stem direction (see *Alternative rhythms*, p. 449).

When the two voice parts have separate stems, alternative rhythms must be written as cue notes alongside the principal rhythm. Place duplicating notes as close as possible to the full-sized notes. A cue-sized note goes to the right unless the main notes are dotted (see example (a) below, beat 3), or are semibreves (b).

When the alternative text has a greater number of syllables, notate additional rhythms ((a) and (c)). When the principal text has a greater number of syllables, use dotted ties for the alternative text ((b), bar 1). In some contexts it may be clearer to use dotted ties rather than additional rhythms for all texts – i.e. the dotted tie then signifies that it is not relevant in all cases.

Use dotted syllabic slurs to indicate different underlay in the alternative text in the normal way (see *Syllabic slurs for alternative text*, p. 451). These must be placed at the stem ends of each part:

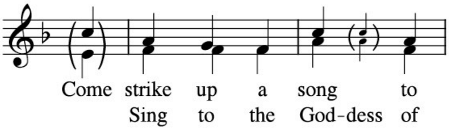


(The examples above demonstrate that alternative rhythms on a double-stemmed stave are extremely hard to read. Verses with such differing underlay are best written out in full.)

OMITTED NOTES

It is helpful to differentiate notes that are to be omitted in one language or verse.

Bracket the notes of a syllable that an alternative text omits. Notate with bracketed cue-sized notes an additional syllable in an alternative text that would otherwise be a rest:



Layout with characters (Stage works)

Place staves for characters in order of tessitura, high to low, regardless of the order in which the voices appear. Each character requires a separate stave. A system need include only the staves of the characters who are singing. Where there is a chorus, chorus staves go below all solo voices. The layout is the same as for soloists and chorus in Table 1 (see p. 463). A stave for a chorus part need appear only where necessary.

CHARACTERS LABELS

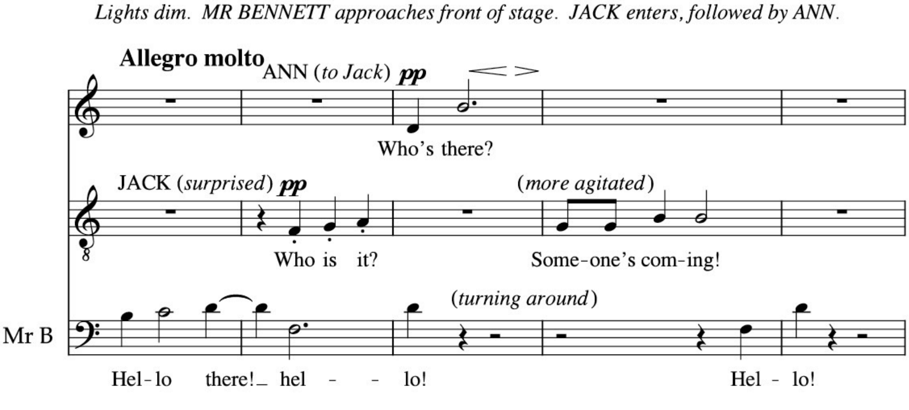
Name the character in full, in small capitals, above and to the left of the first appearance of the singing entry, and at each re-introduction of the character's stave (even where the singer is present on stage throughout).

For subsequent systems, label the character in the margin, abbreviated if necessary (see example below).

STAGE DIRECTIONS

Place scene changes and stage directions at the top of the system above tempo indications. In a single-language edition, these may be either all in roman or all in italic. It is best to use italic if the work has a quantity of spoken text, so that the two are easily distinguished. Reference to character names in stage directions is often marked out typographically (e.g. in capitals or in bold type).

Place style directions for individual characters (e.g. *to himself/walking away*) above the character's own stave, to the left of the musical entry, if appropriate. These may be placed in brackets. In a single-language score, such instructions may either match the type (roman or italic) of the scene-change instructions, or else be in italic in any case, to match the immediacy of musical expression marks.


Lights dim. MR BENNETT approaches front of stage. JACK enters, followed by ANN.
Allegro molto
ANN (*to Jack*) *pp*
Who's there?
JACK (*surprised*) *pp*
Who is it?
(*more agitated*)
Some-one's com-ing!
(*turning around*)
Mr B
Hel-lo there! hel - - lo!
Hel - lo!

In a dual-language edition, all stage directions, including style instructions for individual characters except musical expression marks, should appear in roman type for the principal language, and in italic for the second language.

CHORAL REDUCTION

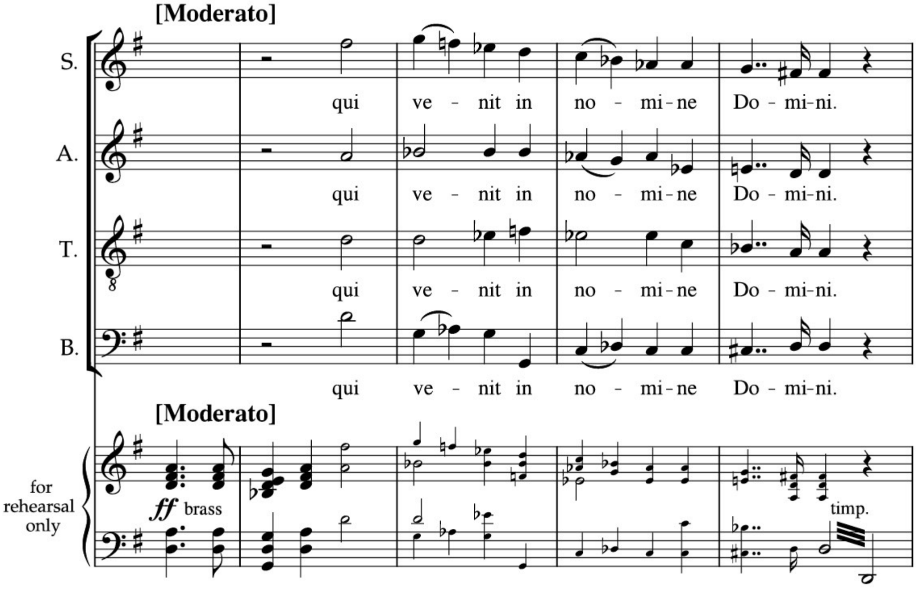
Wherever possible, vocal and choral music should be provided with a keyboard part to aid rehearsal. Where there is accompaniment, the keyboard part will be either a reduction of an orchestral or instrumental accompaniment (see *Orchestral reduction*, p. 548). In an entirely unaccompanied choral piece and in an unaccompanied section of an accompanied piece, the keyboard part will be a reduction of choral forces, as described below.

In an unaccompanied (*a cappella*) piece, the staves for the reduction are usually a smaller size than the vocal staves (about three-quarters of the full size). Staves for an orchestral reduction are the same size as the vocal staves.

Label the opening system *for rehearsal only*. Assign the keyboard part its own tempo markings, as the markings above the vocal staves are too far from the keyboard staves.

In an accompanied piece, distinguish *a cappella* sections from genuine accompaniment by using cue-sized notes for the keyboard reduction of any unaccompanied material:

Bruckner: Mass in D minor


[Moderato]
S.
A.
T.
B.
qui ve - nit in no - mi - ne Do - mi - ni.
qui ve - nit in no - mi - ne Do - mi - ni.
qui ve - nit in no - mi - ne Do - mi - ni.
qui ve - nit in no - mi - ne Do - mi - ni.
[Moderato]
for rehearsal only
ff brass
timp.

In hand-written music, enclose an unaccompanied passage in square brackets, rather than attempting to draw very small noteheads, and label the unaccompanied sections *a cappella*.

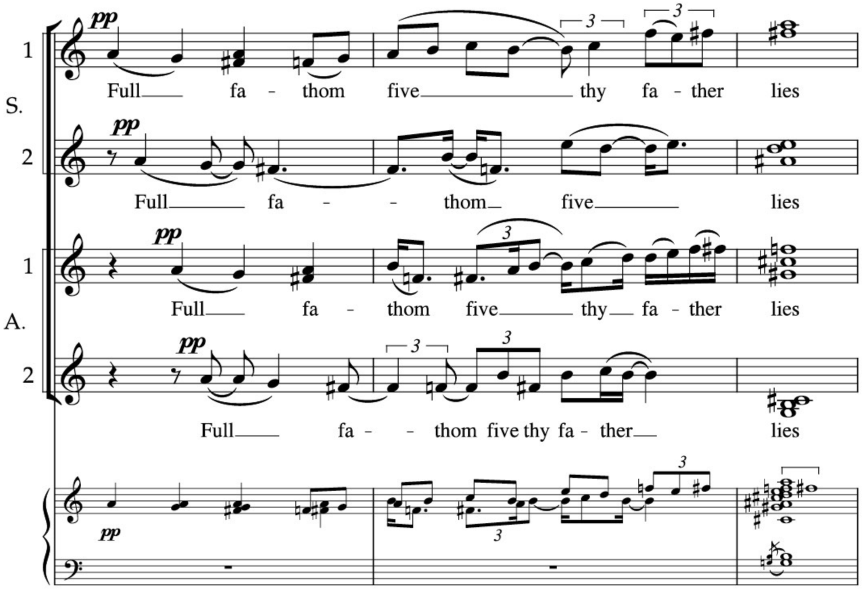
What to include

This is a note-for-note reduction of all chorus parts onto two staves. Its primary purpose is to enable a rehearsal pianist to play all the vocal parts together. Another function of the reduction is to enable the conductor and singers to see the harmonic structure of the music at a glance.

Wherever possible include all sung pitches, especially in non-tonal music in which every note is of equal importance (see example below, bar 3). Do not transpose any of the voices up or down an octave for the convenience of the pianist, as this changes the intervallic relationship between the parts. It is permissible to omit octave doublings in multiple-voiced music.

When it is not possible to include all pitches, a selective reduction is better than no reduction at all. In a work for choir with soloists, or a semi-chorus of more able singers, provide the reduction for the less experienced singers (usually the main chorus; see Searle extract, p. 476).

In complex contrapuntal music, the inclusion of all parts may create such a dense reduction that all voice-leading is obscured. Instead select the most significant moving voices:


S.
1
2
A.
1
2
pp
Full fa - thom five thy fa - ther lies
Full fa - - thom five lies
Full fa - thom five thy fa - ther lies
Full fa - - thom five thy fa - ther lies
3

Notating the reduction

Since its primary purpose is to enable a rehearsal pianist to play all the vocal parts together, notate the reduction in a pianistic way. Distribute the vocal pitches conveniently for the hands. In an SATB arrangement, alto and tenor notes may be written on either stave according to which hand is to play them (see Bruckner extract, p. 471).

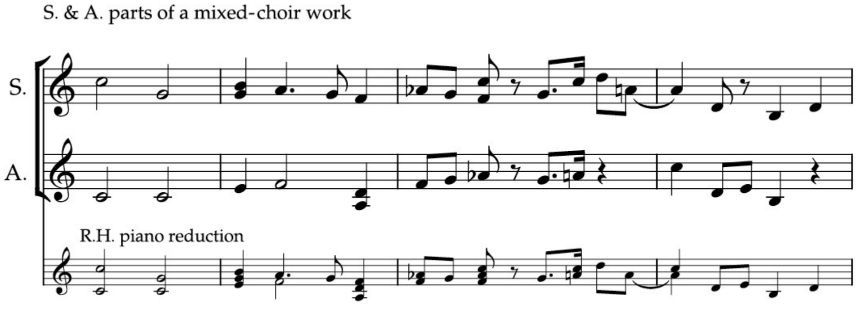
Accidentals need be stated once in a bar to apply to all voice parts on the same stave (see example below, bar 3).

Where there are four or fewer vocal parts in total (enabling a layout of two parts per stave), it is possible to give individual stems for each part. However, this is unnecessary, as the voice-leading can be seen from the vocal parts. It is of most practical help to reduce the notation to its simplest form.

Join as many parts as have the same note-value onto a single stem. Different note-values need separate stems for their respective beats only (bar 2, below). Where one part is tied, it is clearest to use separate stems if there is room for an additional stem direction (bars 3–4).

All parts on one stave share rests wherever possible. When a part enters or drops out mid-bar, there is no need to indicate rests should another part make up the duration of the rests (bars 3–4).

When two or more voices join to a unison, indicate only one notehead or stem (bars 3–4):

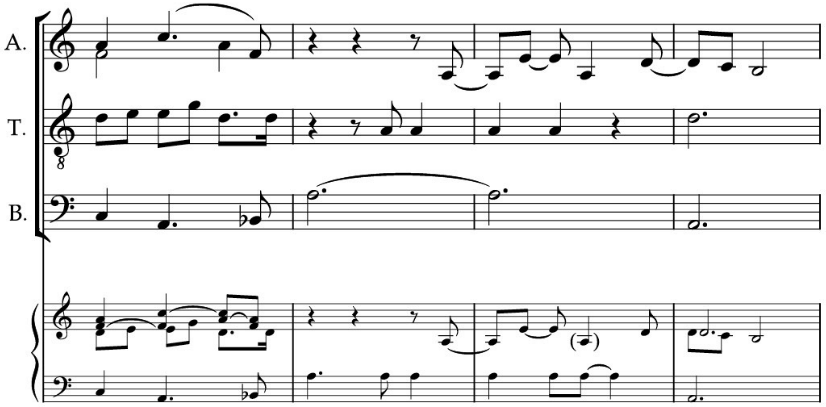


Where there are more than two different rhythms to fit onto a stave, combine more than one voice onto one stem. Divide the longer duration of the two parts and join its notes with ties, so that the movement of another voice can be shown on the same stem (see following example, alto part, bar 1).

UNISON NOTES

A held note that is re-articulated in another part is shortened for the second entry, to create a single rhythmic line (bar 2–3, below).

In contrapuntal writing, it is sometimes helpful to indicate a unison note so as to clarify the lines. Bracket the doubled note that will not actually be played (bar 3, below; see also *The same written note for both hands*, p. 308). Omit a tie where a unison note is to be rearticulated by the keyboard (bars 3–4):

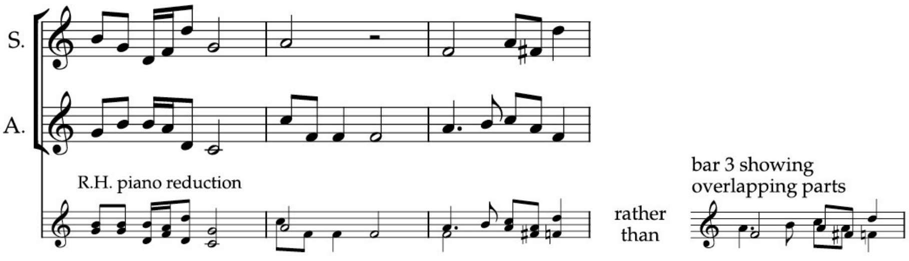


OVERLAPPING VOICES

Where there are only two voices on a stave in the reduction, it is possible to indicate the voice-leading of overlapping parts with individual stems. However, for simplicity, combine voices in rhythmic unison onto single stems (see bar 1, below).

Where two parts that require separate stems overlap (as in bars 2 and 3), it is clearest to reverse the stem directions of the voice parts so that the parts overlap only where unavoidable (bar 2):

S. & A. parts of a mixed-choir work

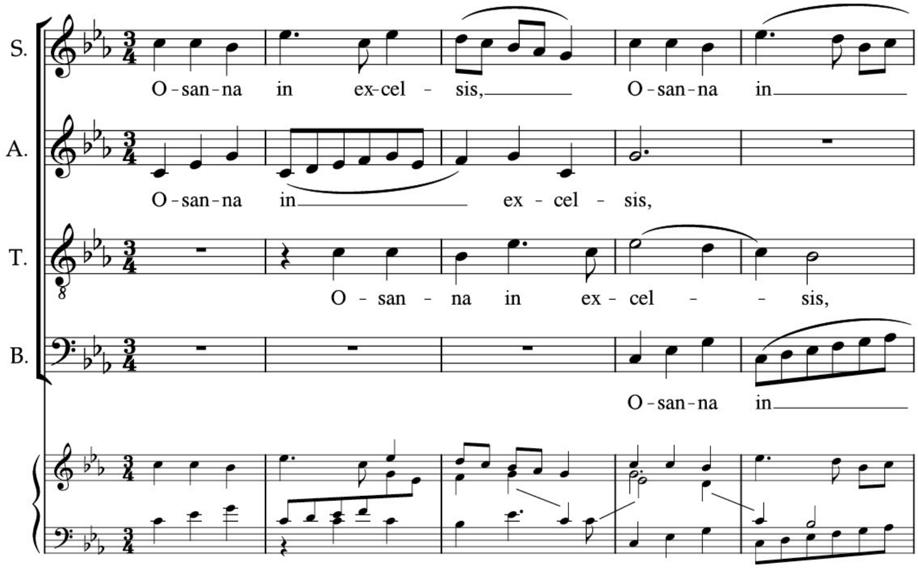


In contrapuntal music that has many voices, it will usually be too complicated to indicate overlapping parts at all.

VOICE-LEADING

When a voice with an independent contrapuntal line moves stave in the reduction, it is usual to show the voice-leading with a thin diagonal line (solid or dotted) between the notes; a centred beam can perform the same function:

Lobo: *Missa 'O rex gloriae'*


S.
O-san-na in ex-cel - sis, O-san-na in
A.
O-san-na in ex - cel - sis,
T.
O - san - na in ex - cel - - sis,
B.
O-san-na in

(See also *Voice-leading between staves*, p. 307.)

However, where there is much crossing of parts between staves, it may become too complicated to show their progression.

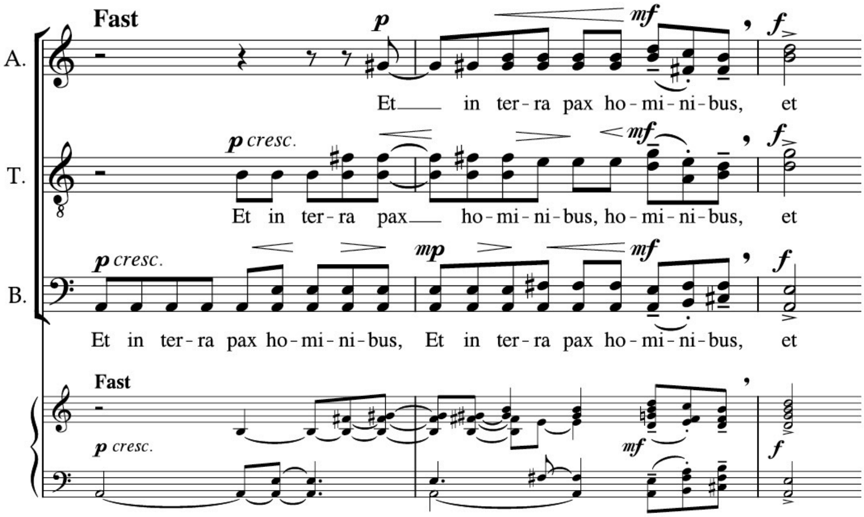
When a voice moves stave in homophonic music, the voice-leading is obvious and thus an indication is unnecessary (see Bruckner extract, tenor part, p. 471).

REPEATED NOTES

The note-values of fast, repeated pitches may be amalgamated into longer notes to simplify the reduction, and make it more pianistic (see following example).

DYNAMICS AND ARTICULATION

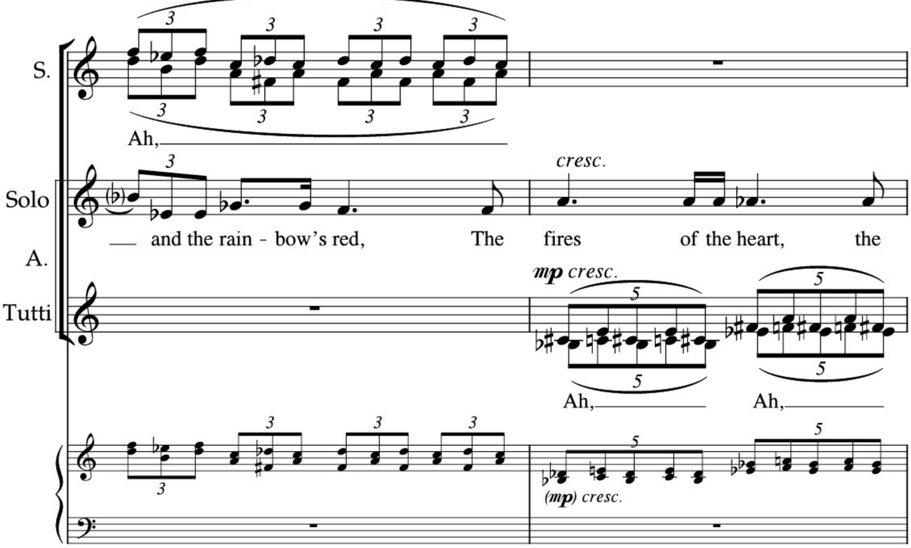
A reduction requires minimal dynamics, since all dynamics appear in the vocal parts. Omit syllabic slurs (see Searle extract, below), but include other articulation, since this will affect the way a pianist plays the reduction:


Fast
A.
T.
B.
p
mf
f
p cresc.
mp
Et in ter-ra pax ho-mi-ni-bus, et
Et in ter-ra pax ho-mi-ni-bus, ho-mi-ni-bus, et
Et in ter-ra pax ho-mi-ni-bus, Et in ter-ra pax ho-mi-ni-bus, et
Fast
p cresc.
mf
f

ENHARMONIC SPELLING

Note-spelling must make melodic sense for each vocal line (see *Enharmonic spelling*, p. 437). In the reduction it is better to spell notes so that the harmonic sense is clear – this is easier for the pianist to read (bar 2):

Searle: *The Canticle of the Rose*


S.
Solo
A.
Tutti
3
5
Ah,
and the rain - bow's red, The fires of the heart, the
cresc.
mp cresc.
Ah, Ah,
(mp) cresc.

III

Layout and Presentation

16

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Introduction

The importance of good layout to a page of music cannot be overestimated. Appropriate layout choices make music a pleasure to read. Inappropriate layout, such as crowded or over-spaced notation, or a stave size that is too large or too small, bring unnecessary obstacles.

(See also *Spacing symbols*, p. 41; also, *Performance conditions*, p. 557.)

Page sizes and formats

Appropriate page size depends on function and is particularly important for performance material (see *Page size*, p. 557).

TABLE 1: Paper sizes

INTERNATIONAL PAPER SIZES (EXCEPT USA AND CANADA)

Page size (portrait format, height x width)		Uses
A3	420 x 297mm 16½ x 11 11/16"	Largest practical size for any performance material
B4	353 x 250mm 13⅞ x 9 13/16"	Largest standard size for instrumental parts
A4	297 x 210mm 11 11/16 x 8¼"	Smallest acceptable size for instrumental parts Conventional choral score and piano/vocal score size
PRINTED MUSIC SIZES		
	c. 305 x 229mm c. 12 x 9"	Printed sheet music
	254 x 178mm 10 x 7"	Printed choral music
	170 x 133mm 6¾ x 5¼"	Marching band parts

MARGINS

Allow at least 15mm/½" for all borders around the printed area of a page – more for a binding edge. A blank margin is essential to allow for the possibility of trim error when printing or photocopying.

Portrait format

Most music is produced in portrait (i.e. upright) format, which is easier for holding and page-turning than landscape format.

Landscape format

This 'sideways' format is traditional for organ music (organ music rests do not always have much height) and for educational music produced for small children. It may also be appropriate for piano music in which the pianist is required to play inside the instrument and lay the music flat (portrait format would hamper the pianist from reaching the strings).

Brass band scores may also take landscape format (see *Score layout*, p. 545).

Page-turning takes longer in landscape format. Such a format is therefore awkward for a conducting or playing score (see *Playing score*, p. 538). It is totally unsuitable for a copy shared between two players, such as a desk of string players, and for singers who must hold their copies. An exception is the traditional piano duet format where, strictly speaking, the two players are not playing from exactly the same music although they share a copy (see *Duet format*, p. 329).

Stave sizes

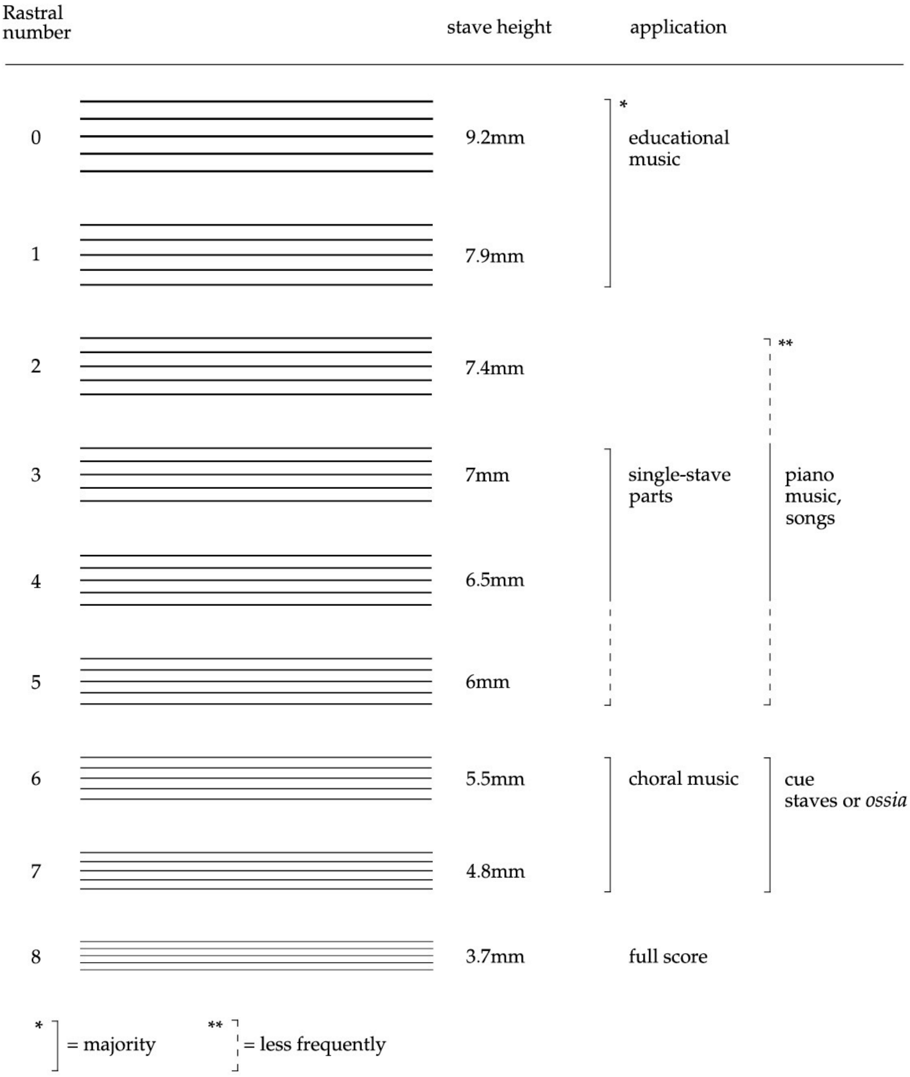
Before the advent of computer setting, printed music used a number of standard stave sizes. These are known as Rastral sizes or numbers, the Rastral height being the measurement of one stave-space. Each Rastral size is associated with a particular musical format: see Table 2, opposite. (The sizes varied slightly between different manufacturers and there were, also, different numbering systems.)

These sizes are a useful guide to appropriate stave size. Choosing a size that is too small is a real danger; apart from being unnecessarily difficult to read it will not engender confidence in the performer.

A piece of music should have a consistent stave size throughout. Only a full score may use more than one stave size, as a practical solution to widely differing densities of orchestration (see *Variable stave sizes*, p. 523).

Chamber-music scores may use more than one stave size simultaneously, to improve legibility for a pianist or singer (see *Chamber works*, p. 523).

TABLE 2: Rastral sizes



Rastral number	stave height	application	
0	9.2mm	educational music *	
1	7.9mm		
2	7.4mm		**
3	7mm	single-stave parts	piano music, songs
4	6.5mm		
5	6mm		
6	5.5mm	choral music	cue staves or *ossia*
7	4.8mm		
8	3.7mm	full score	

*] = majority   ** ⁞ = less frequently

Pagination

Music starts on a right-hand (recto) page, unless there is a particular reason to start on a left-hand (verso) page – e.g. to facilitate page-turns (see *Page-turns*, p. 559). Right-hand pages are odd-numbered, left-hand pages even. An opening right-hand page is page 1, an opening left-hand page is page 2.

In publications, the first page of music (i.e. page 1 or 2) is not usually printed with a page number. However, for manufacturing purposes it is useful to be alerted to an opening left-hand page by adding the numeral 2.

Place page numbers clear of the notation, ideally at the top outside edge of the page away from the fold or binding, where they should be aligned with the vertical edge of the printed area. Numerals should be above or at least level with the highest point of the notation: they define the upper boundary of the printed area. Especially in hand-copied manuscript, ensure that page numbers are not too close to the edge of the page or they are liable to be accidentally deleted in the manufacturing process.

Bar numbers

Bar numbers provide an invaluable reference point in a piece that has separate instrumental parts. They are also a useful guide when preparing the performance material: to check that all material contains the same number of bars, and that rehearsal letters or figures (if used) are placed in the same bars in all parts. The first complete bar (and not an up-beat) is bar 1. The first bar of a piece (or movement) is not labelled.

Bar numbers should not be used in music in which individual performers have different numbers of bars or where barlines do not coincide (see *Non-coinciding bar lengths*, p. 175). Instead, use rehearsal marks at points where players co-ordinate.

Place bar numbers at the beginning of each system, ideally above the clef of the top stave. To number every five or ten bars gives these bars an apparent significance that they do not have, and should be avoided.

It is best to use italic to differentiate bar numbers from roman-type page numbers, since both are likely to be in close proximity on left-hand pages.

Bar numbers should not be framed in boxes or circles where rehearsal figures are also present, or else the two will be confused.

(For bar numbering with repeat sections, see *Bar numbers*, p. 237; with Da Capo and Dal Segno layouts, see *Bar numbers*, p. 240.)

Rehearsal marks

Place rehearsal letters or figures in conspicuous non-italic bold type, to differentiate them from bar numbers. Many editions use the roman bold time-signature typeface.

Conducted ensemble music should take rehearsal marks as well as, or instead of, bar numbers. Rehearsal letters or figures are better reference points than bar numbers as they can be strategically placed at likely starting points for rehearsal: the beginning of a new section; a change of tempo, character or texture; an important solo entry or passage with fresh technical demands. Well-placed rehearsal marks make most efficient use of rehearsal time, since performers spend less time counting bars.

A work in which all performers and the conductor use the same score, as in choral music, requires only bar numbers and not additional rehearsal marks, since page numbers can be used as a common reference.

Place rehearsal marks at frequent intervals, especially in complex passages. There will then be no necessity to count numerous bars backwards or forwards.

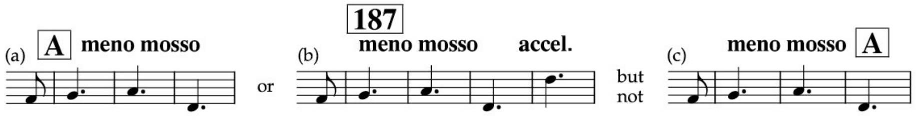
New tempo indications and new movements serve as pointers in rehearsal and therefore do not require rehearsal marks.

Letters have the advantage over figures that they cannot be confused with bar numbers. After Z, AA–ZZ may be used, but additional letters are impractical, and longer scores should use figures instead.

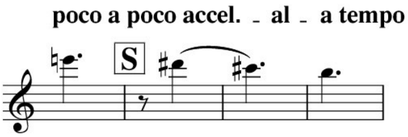
Works comprising short movements should take continuous rehearsal letters or figures for the whole work so that there is no danger that during rehearsal a performer could start, for instance, at the wrong rehearsal letter A. Pieces with longer movements using letters can start each movement afresh, to avoid double or triple letters.

Frame the letters or figures in boxes or circles, so that they stand out from the music. Place them over the system, never under it: a rehearsal letter located between two staves should always refer to the stave below. The letter or figure may be centred over the barline ((a) below), or placed flush-left with the barline ((b) below).

When coinciding with a tempo indication, the rehearsal mark goes first, so as to remain closest to the barline; the tempo aligns after it to save stacking the two (a). If the tempo marking needs to be closer to the first affected beat, e.g. to ensure there is room for a subsequent indication, then place the rehearsal mark above it (b). A rehearsal mark should never go after a tempo marking and be forced over the wrong bar (c):



Where vertical space is limited or where it is more convenient, the rehearsal mark may go below the tempo indication:



(For scores, see also *Placing tempo and rehearsal marks*, p. 520; see also *Matching information for all materials*, p. 501.)

Indentation and layout between movements

The beginning of a piece and each new movement should be indented. This allows instrument names to be given in full in the margin for each movement in full scores (see *Instrument labelling*, p. 507). Movements are indented even when instrument names do not need to be repeated, for instance, in instrumental parts and small ensemble scores. Movements should begin on a new system and be indented, even when they are continuous (see example opposite).

DRAMATIC WORKS

When a dramatic work is divided into separate acts or parts, indent these. Scenes are not usually indented, especially if they are continuous, although a new scene should start on a new system to make its position conspicuous.

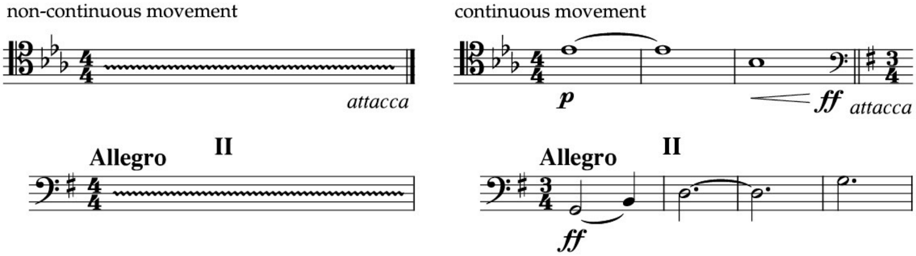
Layout between movements

When the music between movements is not continuous, the end of a movement takes a final double barline. Where music between two movements is continuous, the end of the first movement takes a thin double barline and any change of clef, key and time signature is given in advance of the new movement (this advance warning is not provided for non-continuous movements).

A new movement always takes a time signature, even when this is unchanged from a previous movement (see example opposite).

The marking *attacca* indicates that the next movement follows on immediately, without a pause. This marking can be applied to both a new movement that runs continuously (but where this may not be apparent to all performers) and, also, at a final double barline when there would otherwise be a definite musical break between movements.

Place *attacca* at the end of the first movement, below the stave or system if room, otherwise above.



Casting off

Casting off is the term used to describe organizing the layout for a piece of music: the number of bars per system, staves per page, and pages per work.

The skill of casting off is to balance both practical considerations (e.g. amount and size of music to place on a page) and musical considerations with good spacing (see *Rhythmic spacing*, p. 39; *Spacing symbols*, p. 41; and *Page-turns*, p. 559; for full-score layout, see also *Page layout*, p. 520).

MUSICAL CONSIDERATIONS

Where possible, changes of section should coincide with a new system, so as to be most conspicuous, as should the start of a repeat section or coda (see *Placing repeat barlines*, p. 233, and *Positioning repeat sections*, p. 240).

Vertical spacing of staves

The ideal layout is a similar number of staves on each page. The purpose of this is to achieve an even spread of symbols between pages, which facilitates fluent reading.

STAVE LEVELS BETWEEN FACING PAGES

Match the levels of top and bottom staves across facing pages, regardless of whether the pages have the same number of staves. This is particularly important in a full score (see *Filling out a score to create even page depths*, p. 522).

Ideally pages should have consistent top and bottom stave levels throughout a piece.

Lower the height of the top stave to allow space for headings on a title page and on opening pages of new movements (even when movements are continuous). A good balance is to have the top of a heading level with the top stave-line of the other pages.

When a page has fewer staves than its facing page, space the staves and systems further apart so that outer staves of the pages are level. When a page contains very few staves, it is harder to read widely spaced staves. Instead, preserve normal spacing between them, either keeping the top stave level with its facing page and raising the page depth (this is the more traditional approach), or, if this has an unwanted 'end of chapter' appearance, centring the page with the shorter depth.

When a pair of facing pages has a shorter depth than surrounding pages, lower the top stave height slightly so that the image does not appear to sit too high on the pages.

When a page requires text or notation symbols that extend some distance above the top stave or below the bottom stave, match the outer margins of the printed image across facing pages by lowering the top stave or raising the bottom stave slightly. This preserves a good-sized margin (see *Margins*, p. 481): no notation is forced to the extreme top or bottom of the page. Keyboard music often needs this adjustment (to allow for ledger lines, octave signs and pedalling) and also theatre works (to accommodate scene-change instructions at the top of the page).

DISTANCE BETWEEN STAVES

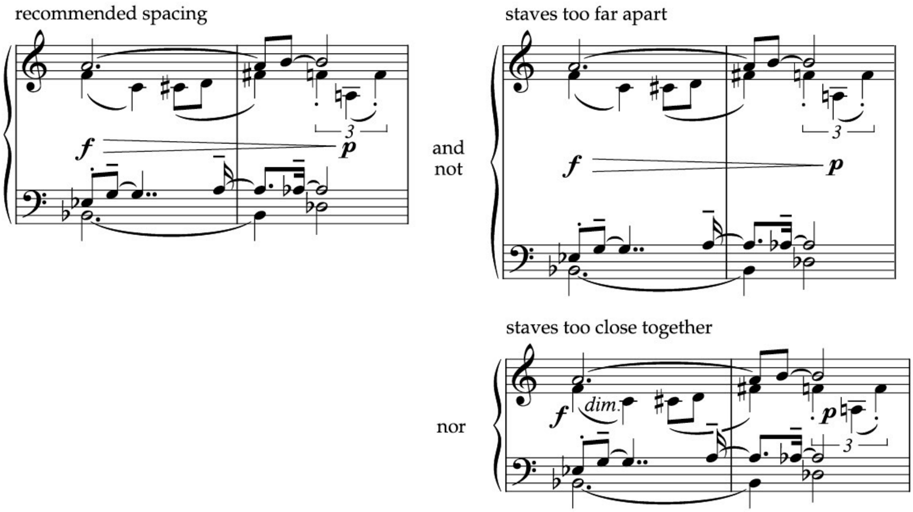
Staves should be at least a stave height apart or they will look very cramped. Equidistant staves are not always the best layout: staves placed at variable distances apart will avoid disproportionally wide or cramped spacing between them.

When a page contains more than one system, the distance between systems should, if possible, be greater than the distance between the most widely spaced staves on an adjacent system.

(See also *Defining systems*, p. 521; for spacing in instrumental parts, see *Spacing staves*, p. 558.)

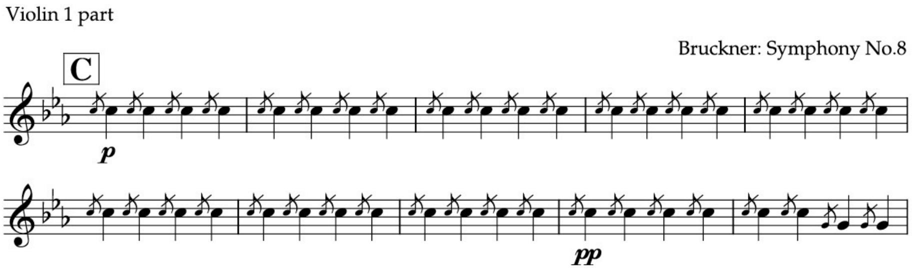
SPACING A BRACED PART

Adjust the distance between staves from system to system, according to the demands of the notation. Staves too close together or too widely spaced make the music more difficult to read:


recommended spacing
f
p
3
and not
staves too far apart
f
p
3
nor
staves too close together
f
dim.
p
3

Offsetting barlines

Barlines on adjacent systems should not align. If barlines do coincide, systems containing like material look too similar and the eye is liable to skip a system; in a score, adjacent staves will look as if they are part of the same system. Barlines that do not coincide clarify the system breaks:


Violin 1 part
Bruckner: Symphony No.8
C
p
pp

Splitting bars

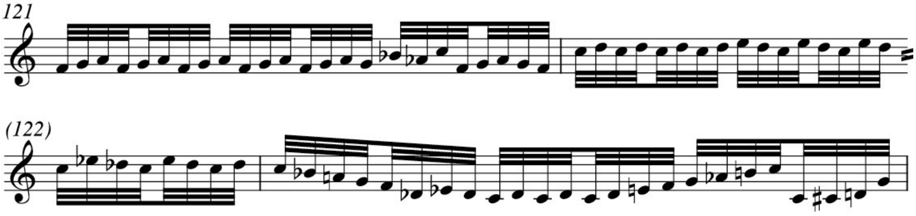
In exceptional circumstances it is acceptable to divide a long bar between two systems so that spacing can be consistent. It is more difficult to read a system containing a single bar if it is over-spaced.

It is only acceptable to split up a bar when a whole bar is too long to fit onto a single system, or when three bars more conveniently fit onto two systems, each system taking a bar and a half (see following example).

In a full score, the incomplete bar should lie across facing pages and not over a page-turn. In an instrumental part, a bar should never be divided between two pages.

Divide the bar between whole beats, and leave the end of the incomplete bar without a barline. To alert the reader to the unfinished bar in an instrumental part, add two short diagonal lines mid-stave.

Place the bar number on the new system in parenthesis to show that this is not the beginning of the bar:



Horizontal spacing in score format

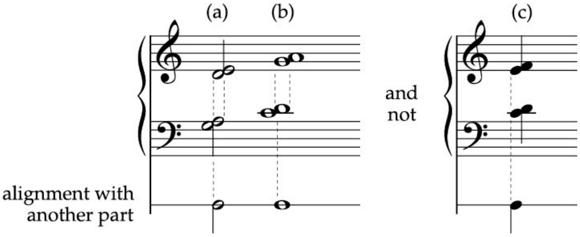
In a score it is often not possible to have even spacing in every part unless all parts have identical note-values (see *Rhythmic spacing*, p. 39). The wider spacing required for a variety of subdivided beats will inevitably distort the even spacing of other parts with fewer notes.

Assign even spacing as a priority to the densest part for each beat individually – the most complex rhythms must be the quickest to read. (This issue is also discussed in *Tuplets: Rhythmic alignment*, p. 200.) Vertically align the notes and rests of other parts in relation to the densest parts. At this point it may be possible to adjust the densest notation to avoid the greatest distortions elsewhere.

Distortion in horizontal spacing is particularly acute when some parts have independent time signatures or non-coinciding barlines, since additional symbols (such as time signatures, barlines and repeat signs) may leave unwanted gaps in other lines (see examples under *Score layout with independent repetition*, pp. 626–7). Where possible, it is worth adjusting rhythmic spacing to correct the greatest distortions.

Vertical alignment

The vertical alignment of different parts either on a single stave or in score format should reflect the order in which notes are to sound. Therefore simultaneous sounds should align vertically wherever possible. Notes on the 'correct' side of each stem are aligned, and displaced adjacent notes fall outside the alignment (a); semibreves are treated as if they were stemmed (b). Chords containing adjacent notes should not necessarily align their pairs of notes, since to move a stem to achieve this destroys its alignment with a part on another stave (c):



This alignment of chords between different staves is treated in exactly the same way as when two parts are present on one stave (see *Adjacent-note chords: Double stems*, p. 49; also, Janáček extract, p. 550; *Offsetting unison and adjacent noteheads* and *Overlapping parts*, p. 53).

Performance instructions

The following general instructions should be placed at the front of a score or instrumental part so that they can be read in advance of rehearsal:

- instructions that require extensive explanation
- advance warning of special requirements (extra instruments, unusual mutes, instrument preparation (e.g. prepared piano), unusual manoeuvres (e.g. moving off-stage): this information should not be hidden away in a footnote in the middle of a part
- general information on interpretation: this is preferable to copious or repeated instructions, which might otherwise clutter the music

A short, specific local instruction (e.g. basic technical description) should appear above the appropriate stave. More complex explanation should take a footnote. In performance material, the instruction must appear on the same page as the technique: a performer should not be forced to turn back during rehearsal to find it.

Use asterisks or other signs (*,**, †, ††, etc.) for footnotes, and not numerals, which might be confused with fingering, bar numbers, and so on.

LANGUAGE

Tempi should appear either in Italian or in the composer's native (or a common) language, rather than in a mixture of both. Expression marks and technical instructions may use either. Detailed technical instructions need clear, unambiguous wording, and therefore may be best given in the language of the composer. They must also be intelligible to the intended performers: elaborate instructions in Italian may well be ignored by a non-Italian speaker.

Text typefaces in the music

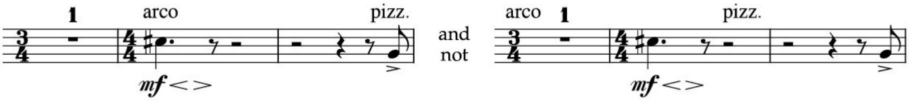
Roman and italic typefaces differentiate directives: roman type is used for player allocation, instrument changes and technical instructions, with bold roman for tempi; italic type is used for expression marks, with stylised bold italic for dynamics. The reader is accustomed to this text differentiation, and information can thus be assimilated more quickly.

Some common instructions related to playing styles are almost always given in italic: *staccato*, *legato*, *glissando*, *bisbigliando*, *sons étouffés*. This typeface is inherited from nineteenth- and twentieth-century precedents in which italic was generally used for all Italian markings (or another language foreign to the composer's – or edition's – place of origin). Alternatively, these instructions may appear in roman type (as, for instance, vibrato and arpeggiation instructions usually do). The most important consideration is to use whichever typeface is most legible in the context: i.e. the one that most clearly distinguishes the instructions from other information. Once instructions become very technical, they usually take roman type.

Technical instructions

Player allocation, instrument changes and technical instructions are placed above the stave and use lower-case letters. They should be sufficiently large to be conspicuous, but not use bold type – which is reserved for tempi and dynamics.

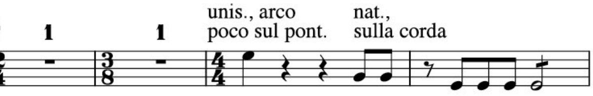
Place instructions as close as possible to the notes to which they refer, rather than over previous rests, so that they are not accidentally overlooked:



(See also *Labelling instrument changes*, p. 559; also, *Mute instructions*, p. 563.)

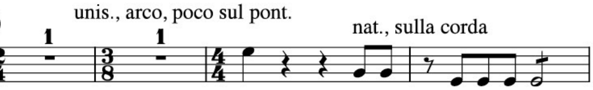
In order for combined instructions to be seen to apply to the first affected note, and not appear to start with later notes (c), they must either be stacked above the first note (a) or start over a previous rest (b):

(a)


1
1
unis., arco
poco sul pont.
nat.,
sulla corda

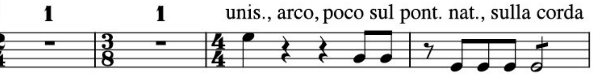
or

(b)


1
1
unis., arco, poco sul pont.
nat., sulla corda

but not

(c)


1
1
unis., arco, poco sul pont. nat., sulla corda

An instruction required for a specific duration takes a dotted line (not a solid line) and end bracket:

sul G--------┐

An extended passage can take a sign that is standard for finishing a technical instruction (the sign 𝄋, the coda sign 𝄌 or pedal-release sign ✱) instead:

molto legato al segno 𝄋 or *molto legato* as far as the sign 𝄋

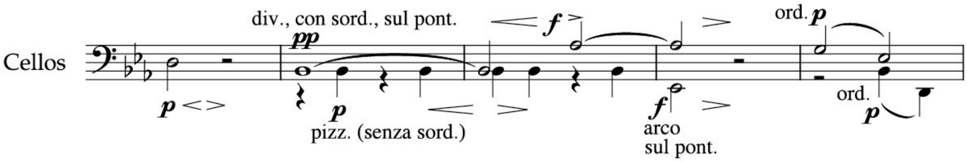
Transition between one technique and another takes a solid line with an arrowhead:

senza vib. ———→ molto vib.

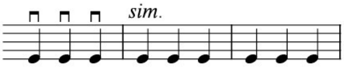
After a rest period, it is useful confirmation to repeat instructions in brackets, especially when neighbouring performers have different technical instructions, e.g. some players muted, others without mutes (see following example).

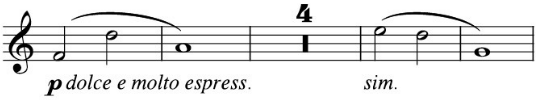
Where there are two parts on one stave, and both require instructions, those for the lower part go below the stave. A *divisi* indication remains above the stave (see example below). Dynamics for both parts appear between the stave and the instructions. The following example is acceptable only in a score (the divided part should have two staves in an instrumental part):

score only


Cellos
div., con sord., sul pont.
pp
p
p
pizz. (senza sord.)
f
f
arco
sul pont.
ord.
p
ord.
p

Simile (abbrev. *sim.*) is used to indicate repeated technical instructions or expression marks. It is usual to write it in italic even when referring to technical instructions. Do not use *sim*. at the beginning of a system, since the performer will need to look back and may lose the place.





Do not replace passages of repeated dynamics or phrase marks with *sim.*, since these instructions are easily overlooked.

Symbols to replace repeated instructions

Typically, a symbol would replace instructions for a technique exploring a new way of producing a sound. A symbol such as a cross or other sign through a stem, an unusual note shape or a symbol placed above the stave may replace copious repeated verbal instructions. (Any symbol requires verbal qualification in a preface or at its first appearance.) For example, a 'plucking with fingernail' or plectrum symbol saves repeated instructions (see examples under *Plucking techniques*, p. 367).

Where a technique occurs only occasionally, a short verbal description is more helpful than an invented symbol unique to a piece – this avoids the danger of a musician forgetting its meaning. For various options, see *Symbols to express special techniques*, p. 298.

A symbol should have a single function in a work or its meaning will be ambiguous. Do not give an existing symbol a new meaning: this is confusing.

Any graphic element should be kept simple, so as to be read quickly. Graphic shapes to be read left to right on the horizontal time-axis, and placed in or above the stave, may show changing sound quality. For example, wedges may indicate different degrees of pressure on particular instruments (e.g. bow or lip pressure). In Harvey's *Advaya*, normal to excessive bow pressure creates more noise than pitch at the point of strongest pressure (see p. 406). Wedges placed after pitches may illustrate widening of pitch density (by glissandos) into clusters (see example under *Rhythm and pitch cues*, last bar, p. 593).

A trill line is useful to indicate the presence and duration of a sound, technique or manoeuvre where more detailed information is unnecessary (see example from Harvey's *Scena*, p. 299; also, the example *Different timbres/ textures*, (c), p. 597).

Cancelling instructions

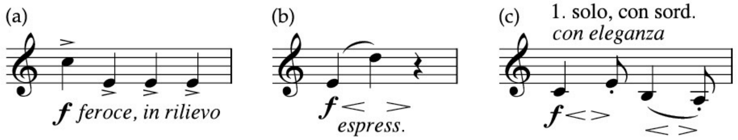
Non-standard techniques may be cancelled by any of the directives as follows:

ord. (modo ordinario)
nat. (posizione naturale)
norm. (posizione normale)

These are always placed at a subsequent entry (see example for cellos, last bar, p. 493), never at the end of a previous one where they are liable to be overlooked.

Expression marks

Where room allows, place expression marks below the stave, after dynamics (a). When a hairpin immediately follows a dynamic, align the hairpin with the dynamic, and place the expression mark below (b). Where space below the stave is limited, move expression marks above the stave, after any technical instructions (c):



A braced part (keyboard and harp) places expression marks that apply to both hands between the staves, after dynamics.

(For score layout, see also *Sharing performance instructions*, p. 525.)

Use of 'solo' and 'soli'

These terms must be used with care to avoid confusion.

The terms *solo* (for one player), and *soli* (for two or more players) are instructions to play in a soloistic manner.

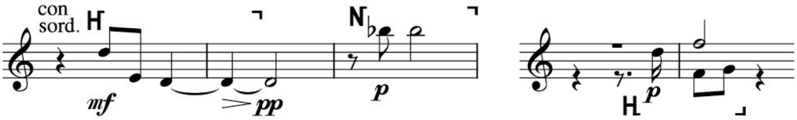
For woodwind, brass and percussion, a single player alone is labelled by player number.

In a string section an individual player must be labelled by numeral and *solo* to avoid confusion with desk or division number: *1 solo*, etc., as in example (c) above (see *Player allocation*, p. 429).

For string players a prominent line should be labelled *in rilievo* (Italian, 'in relief'). This also applies to designating a solo player in a multiple-player section, e.g. in a wind band piece (see *Wind band: Solos and tutti*, p. 544).

Principal voices

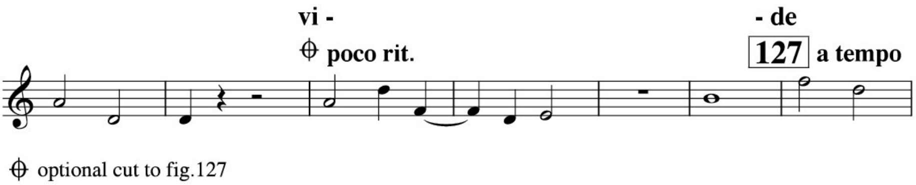
To designate individual notes or phrases as the principal line, Schoenberg's *Hauptstimme* (principal voice) sign H ¬ may be placed directly above the notes to enclose the prominent material. A secondary voice, *Nebenstimme*, is notated as N ¬. These signs are so commonly used that they require no further explanation:



Alternatively, square brackets alone ⌐ ¬ may enclose such material, as long as their function is explained in a preface (see extracts from Carter's *A Symphony of Three Orchestras*, p. 517, and from Schoenberg's *Pierrot Lunaire*, p. 338).

Optional cuts

Encountered usually in stage works, the relevant passage is marked at the top of the system with the divided word **vi- -de** (Latin, 'look!') and an explanatory footnote:

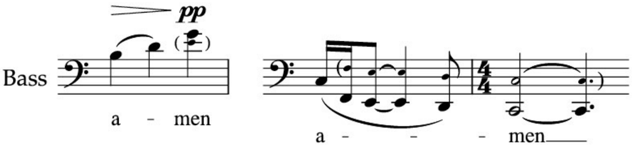


This is sometimes accompanied by a coda sign at the beginning or at both ends of the cut (the second coda sign is optional; as in a coda, this sign indicates a point from which to skip ahead).

The ossia

Practical alternatives to technical difficulties

An *ossia* note is given as a small note in brackets and placed on the same stem as the preferred pitch. Consecutive *ossia* notes need only one set of brackets:



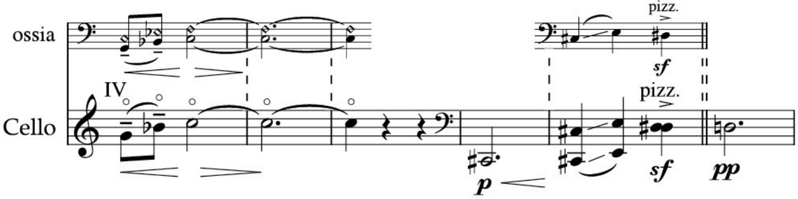
More complex arrangements require the addition of a cue-sized stave for the duration of the alternative material – not necessarily whole bars (see *Cue stave: layout*, p. 575). The cue stave is usually placed above the main stave, but may be fitted in below if more convenient. Label the cue stave *ossia* and connect each bar to the main stave with dotted barlines. A solid barline connects both staves at the beginning of a system.

When the *ossia* stave starts mid-system at a barline, most editions do not include an initial barline through the cue stave: the dotted barline occupies only the space between the two staves (see example below, bar 5).

For an *ossia* stave starting mid-bar, there is no connecting barline; an *ossia* stave that occurs only in the middle of a bar is free-floating and not attached to the player's stave.

Some editions do not include a clef for an *ossia* stave. This is acceptable provided that it is obvious which clef should be used.

Allocate the dynamics, articulation, expression marks and technical instructions of the main stave to the *ossia* stave, so that the performer has all information on both lines:



This layout is the same as that used in string notation to indicate sounding pitches (see *Harmonics: Indicating sounding pitches*, p. 421; also, *Scordatura*, p. 424).

Playing cues

Material may be cued into another instrumental part or group of instrumental parts for a variety of reasons:

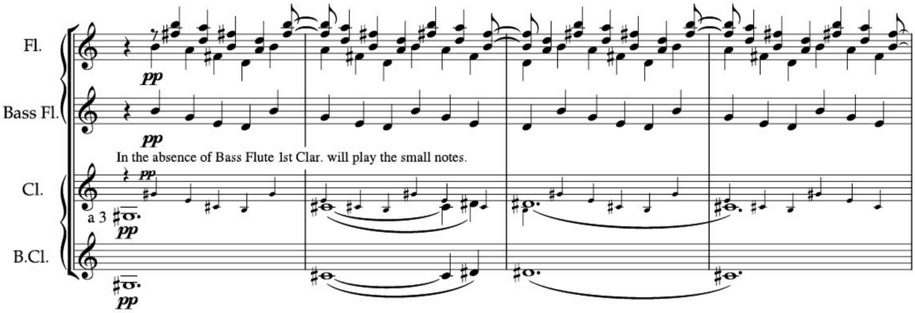
- to provide a substitute for an unusual instrument or a voice that may be missing from the line-up (see example below)
- to reduce the number of performers required
- to reinforce an instrumental or vocal line at the conductor's discretion
- in the event of an absent player in rehearsal (this is useful for material intended for amateurs or for educational purposes)

In the full score as well as the relevant part, notate the material for the alternative instrument as a cue (i.e. in small notes). Choose one of the available cue styles (cue-stems with ordinary directions or stems reversed away from the staves with whole-bar rests – see *Stem direction*, p. 570) according to whichever is clearest for the conductor and player to read. The cue requires complete performance instructions – technical instructions, dynamics, phrasing, and expression marks – and the correct transposition for the playing instrument. Label the cue 'Play the cue in the absence of . . .' or 'Play at the conductor's discretion'.

In *The Planets*, Holst cues all material for alto flute (misnamed bass flute) and bass oboe that is not already doubled in other woodwind parts.

When the alternative instrument would otherwise be playing if not required to add the cue, notate both lines on one stave and allocate separate stem directions for each part:

Holst: *The Planets*


Fl.
Bass Fl.
Cl.
B.Cl.
pp
pp
In the absence of Bass Flute 1st Clar. will play the small notes.
pp
a 3
pp
pp

(See also *Cue notation*, p. 569; for wind band, see *Playing cues*, p. 544; for composition alternatives, see *Alternatives (Choices)*, p. 643.)

17

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What is included in a full score

A full score should record the content of each individual performer's music. All instructions written in the performance material should be included, as should specific articulation: phrasing, tonguing and bowing. Only very specialised technical instructions, such as fingering, may be omitted.

The score should include any *ossia* parts that may be used in the absence of other players or singers (see *Playing cues*, p. 498).

Matching information for all materials

As well as a full score, material for a single work may comprise a rehearsal score (a keyboard reduction of orchestral or ensemble material for rehearsal purposes – see p. 548) and an individual part for each instrument. A work involving chorus should also include a vocal score (vocal lines and keyboard reduction) or chorus part (vocal lines without reduction). All the material must match in common points of reference: movement headings, rehearsal letters or figures and bar numbers (see *Bar numbers* and *Rehearsal marks*, p. 484; also, *Placing tempo and rehearsal marks*, p. 520).

RUNNING HEADS

For works in many sections (movements, acts or scenes, songs or other numbers), headings at the top of each page help the musician to identify a particular place quickly. The most helpful references are movement, section, act or scene numbers. These headings are useful in a full score, rehearsal or vocal score and chorus part, and may be added to the running-head instrument labels in instrumental parts (see *Labelling the part*, p. 558).

Title page

A score should begin with a title page on the first right-hand page. The title page lists the following:

- the work's composer (and arranger if relevant)
- title
- forces
- year of composition (and/or arrangement)
- author of texts
- score genre (full/playing/vocal/rehearsal score)
- publisher's name (if relevant)

Front matter (Preface pages)

Provide the following essential information at the front of the score, between the title page and the opening page of music. This front matter is also known as preliminary pages. Include all requirements specific to that score (listed in suggested order of appearance):

- publication information (if relevant): publisher's name, address; place and year of publication (this appears on the left-hand page after the title page – known as the 'title verso' – if there is one, otherwise at the bottom of the title page); see also *Optional information* (below)
- list of contents (if appropriate), together with page references: pieces in a collection; song or movement titles; scenes in a dramatic work
- details of optional cuts or flexible order of numbers (if relevant)
- preface written by the composer/arranger/author (e.g. for a new edition)
- commission acknowledgement, and funding body (if different) and any other acknowledgements
- first performance details (performers/venue/date)
- duration (even if necessarily approximate)
- instrumentation (see opposite)
- score transposition (see *Notation conventions*, p. 504)
- specification of vocal forces, speakers or actors necessary in addition to the title description (see *Labelling choral forces*, p. 462); named characters listed with their voice parts
- texts – e.g. poem, narration (see *Text*, p. 437)
- electronic requirements including any recommended option for amplification (see *Equipment*, p. 591)
- a diagram of an unconventional seating arrangement that may be required for co-ordination purposes
- notation conventions (see p. 504)
- performance instructions (see p. 491)
- programme note

Add commission, first performance details and duration to the title page if no other pages are devoted to the above front-matter items.

A dedication (or epigraph) may be placed on the title page above the title, or on a separate page (traditionally this would be on the third page).

Optional information: to be printed on the title verso where relevant:

- copyright notice in addition to that placed on the first page of music (see *Information on the first page of music*, p. 504)
- statement of performance rights (if the composer/publisher is a member of the collecting society within the relevant territory)

- credit for type-setter, designer, etc.
- printer's name
- details of from where to hire materials

PAGE NUMBERS

Preliminary pages are numbered separately from the music, using lower-case roman (rather than arabic) numerals to distinguish them from the music's page numbers, with the result that the first page of music begins on page 1 (if a right-hand page) or page 2 (if a left-hand page). Often preliminary pages do not have any page numbers: only pages referenced in the contents list or elsewhere in the score need to be numbered (the title page does not take a numeral). The front-matter pages are counted in sequence from the first page: thus, printed numerals may start with a preface note or any other lengthy piece of text that is referenced subsequently (e.g. as p. vii). Centre these numerals at the bottom of the page.

(For paginating the music, see *Pagination*, p. 483.)

INSTRUMENTATION

Unless every instrument has been described in the title, list all instruments in the order in which their staves appear in the score. Indicate the following:

- the number of players of each woodwind and brass instrument
- all doubling instruments. In a wind section, specify which players double on which instruments (see *Doubling*, below)
- specific woodwind and brass instruments, e.g. *Trumpet in D* (see *Labelling transposing instruments*, p. 510)
- timpani as a separate item from percussion, stating whether more than one player is required
- the number of percussion players, all instruments, ranges and types of non-standard instruments (see *Listing instruments and specifications*, p. 272). If extensive, this may appear as a separate list
- a minimum or specific number of players or desks in a string section (optional but helpful)
- instruments with particular technical requirements: e.g. *Double bass (with C extension)*
- essential attributes required of non-standard instruments
- acceptable alternative instrumentations

Doubling: Place the doubling instruments in brackets. The '=' sign may be used, e.g. *3 flutes (II = alto flute, III = piccolo)*. Roman numerals clarify that it is the one named player (e.g. player 2) who doubles and not two or three players (see also *Doubling instruments in orchestral music*, p. 530).

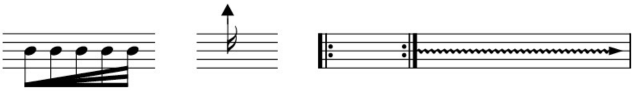
NOTATION CONVENTIONS

Indicate the written pitch of transposing instruments in a score with a statement such as 'transposed score' or 'score in C' (see *Score transposition*, opposite).

Explain any special notation, including:

- non-standard symbols
- unconventional accidental systems (see *Accidental systems*, p. 86)
- symbols used for microtonal accidentals (see *Microtones*, p. 94)
- special tunings
- playing style, e.g. for modes of attack, or as damping conventions
- particular performance conventions, e.g. for performing ornaments or grace notes
- procedure for independent repetition (see *Instructions for repetition*, p. 624)

Do not assume that the musicians will be familiar with any (even slightly) unconventional notation. Although they may be conversant with the following symbols, they need to know that their interpretation agrees with the composer's intentions:



Information on the first page of music

Place the title of the work, the composer, arranger and author of any texts on the first page of music. Centre the title at the top of the page, with dedication (if required) above it, in italic. Beneath, the composer and arranger are placed on the right, flush with the right-hand edge of the staves. Author and translator are credited on the left, aligned with the left-hand edge of the printing area, level with the composer's name. These proper names usually appear in small capitals.

Copyright material must be credited. The credit line should appear in a conspicuous position as close to the front of the score as possible. Under the Universal Copyright Convention the credit must include the symbol © in order to secure international copyright protection. State:

> © year of first publication (or date of composition if unpublished),
> copyright holder

Copyright credits for music should be placed at the bottom of the first page of music (usually aligned with the left-hand edge of the staves).

The wording of credits for texts should be agreed with the author or agent on his or her behalf. These may be placed with the music copyright line or else beneath a copy of the text source if one precedes the music (see *Text*, p. 437). If a work has more than one copyright owner (e.g. the composer, the author and an independent translator of a text), allot separate copyright credits for each.

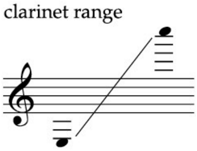
Score transposition

Some thought must be given to the ultimate market of a full score.

TRANSPOSED SCORE

For an experienced conductor, the 'transposed score' in which transposing instruments are written as the player sees them looks correct. The notation of the score and instrumental part match identically. Both conductor and player can discuss pitches knowing that they have the same written notes. The conductor is in a position to spot errors made in transposition, although he or she will have no source against which to check these.

A transposed score places the pitches of transposing instruments comfortably on the stave. Thus it has the great advantage of showing if instruments play in their normal range. For example, all transposed clarinet parts have the following standard written range (at times extending upwards by a major third or even beyond):



(Basset horn, bass and contrabass clarinets can play up to a major third lower.)

For this reason, it is usual to provide a transposed score for all types of wind and brass ensemble music. However, complex wind band scores are sometimes notated in C (for wind band, see *Transposition and key signatures*, p. 539; for brass band, see *Clefs, transposition and key signatures*, p. 546).

If players will be performing from a score, transposed instruments must appear in their transposed form (see *Playing score*, p. 538).

In a chamber-music score or one with piano accompaniment, the line of a transposing instrument is usually notated at transposed pitch, so as to tally with the instrumental part.

CONCERT-PITCH SCORE

In a 'score in C', where all instruments are written at concert pitch, it is easier to check harmonies and the score is without danger of mistranspositions. However, should there be any transposition mistakes in the parts, the conductor will not be able to spot these.

Clefs

The clefs in a score should be those used by the player, and that appear in his or her instrumental part: e.g. a viola line in a score uses the alto clef except when the tessitura is too high; a high bassoon or tenor trombone line should be written in the tenor, not the treble, clef. In a transposed score, a line for any type of clarinet appears only in the treble clef.

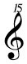
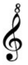
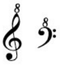
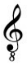
A score in C may use treble and bass clefs freely for transposing instruments. The range of the bass clarinet or horn, for instance, will require both clefs to avoid multiple ledger lines (see also *Minimum ledger lines*, p. 524).

Octave-transposing clefs

Instruments that sound an octave higher or lower than notated should never be written at actual pitch, whether the score is written in C or transposed (see also *Double bass harmonics*, p. 423). The conventional octave transpositions are specifically designed to avoid the ledger lines that notation at actual pitch would necessitate.

To indicate an octave transposition, an '8' may be attached to a clef. This notation is optional, but the modified clef makes it easier to identify the position of instruments with such transpositions in a score. (The practice of using these clefs originates from a time when it was felt necessary to clarify octave transpositions: composers such as Schoenberg started a trend by producing scores with all instruments notated at actual pitch, i.e. without any octave transpositions.)

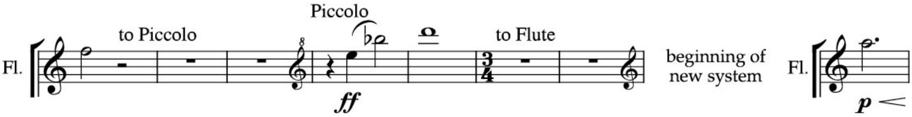
TABLE 1: Octave-transposing instruments

clef	sounding two octaves higher	clef	sounding one octave higher	clef	sounding one octave lower
	glockenspiel crotales		piccolo xylophone		contrabass clarinet contrabassoon double bass
			celesta		bass flute bass oboe/heckelphone guitar

It is assumed that a score uses this octave-transposing convention, whether or not the octave-transposing clefs are indicated. Alternatively, instead of the modified clefs, a note may be added to the preface for clarity: 'Throughout the score, piccolo and celesta sound an octave higher than written, and contrabassoon and double bass sound an octave lower than written.'

Exchanging ordinary and octave-transposing clefs

Place an octave-transposing clef before the relevant entry; replace it with an ordinary clef before the entry of an instrument that sounds at written pitch. When the clef change is mid-system, place the new clef just before the entry. When several rest bars precede the instrument change, place the new clef at the beginning of the first system after the instruction to change instrument (give warning of the new clef at the end of the previous system):



The advantage of not using the octave-transposing clefs is that the clef exchanging is redundant.

(See also *Labelling instrument changes*, p. 510.)

Instrument labelling

On the opening page of music, label each stave with the unabbreviated instrument or voice name in the margin. Doubling instruments may be given in brackets here, although it is more usual to list all doublings separately in an instrumentation list.

It is traditional to repeat unabbreviated labels at the start of each movement. The first system of each movement should be indented – this provides margin space for labelling.

In orchestral or large ensemble scores, all subsequent pages take instrument or voice labelling in the margin, abbreviated to save space (see Table 3, p. 511).

A small ensemble score that retains all staves on each system throughout (i.e. one that never changes layout) needs no further margin labelling after the first page; nevertheless, the first system of new movements should still be indented (see *Indentation and layout between movements*, p. 486).

The typeface allocated to instrument names placed in a score margin should match the one chosen for text instructions within the score. (This style is used for the examples in this chapter that show margin labels, to replicate the appearance of a conventional score (see pp. 509–18 and 531–7). In other chapters and elsewhere in this chapter, instruments appear in the caption typeface, since they function as labels.)

PERCUSSION STAVES

A percussion stave should be labelled as such, with each instrument named individually above its entry (see example, p. 516). Individual instrument names appear in the margin only where a percussionist plays a single instrument throughout a score (see *Labelling instrument entries*, p. 274).

NUMERAL STYLES

A common convention is to use arabic numerals for all individual player labels, but roman numerals for a body of players making up members of the string section. These members may be labelled in the singular or plural (e.g. Violin I or Violins I).

MARGIN POSITION

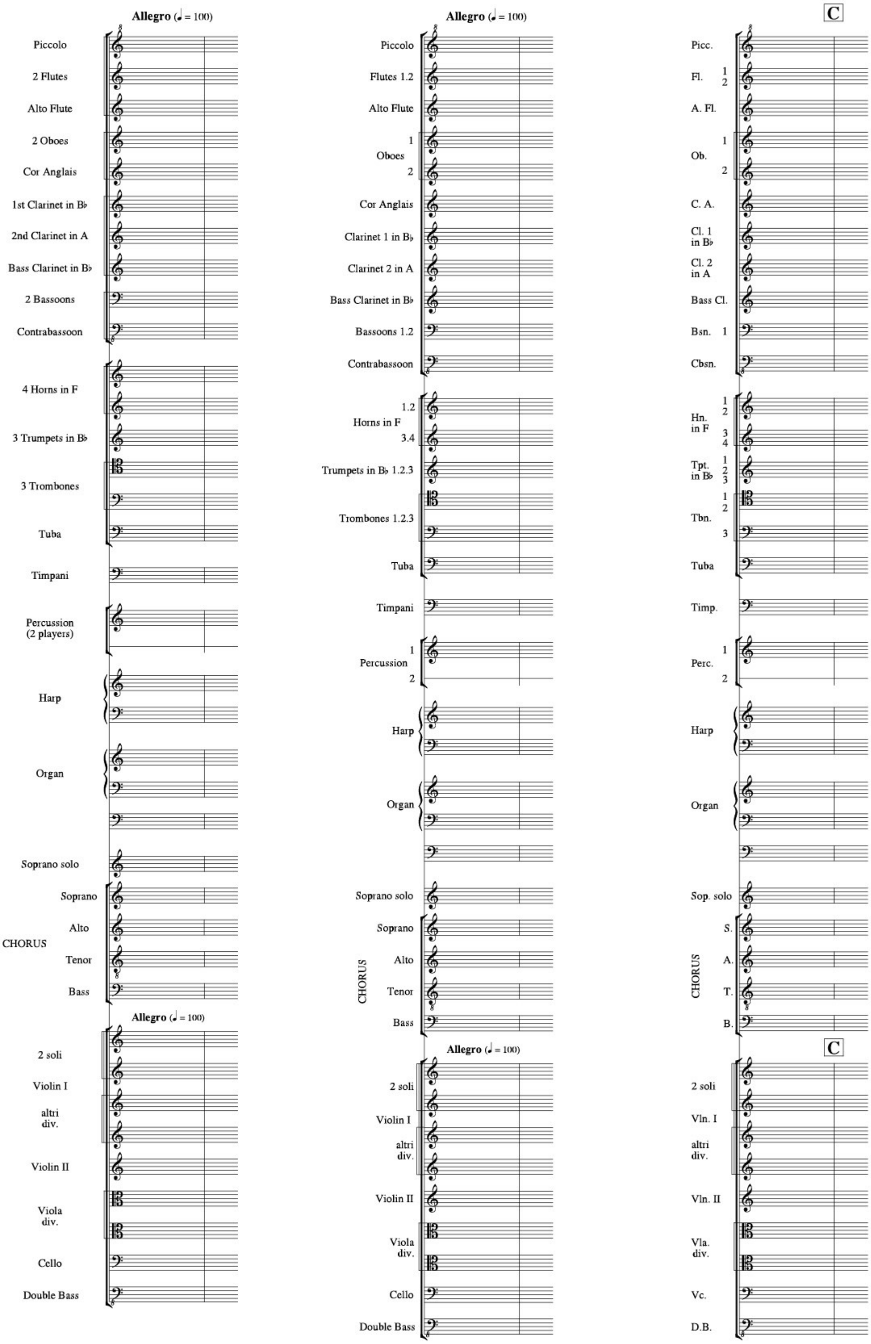
Instrument labels may be centred in the margin space – this is the most traditional layout (see Table 2, column (a), opposite). Alternatively, they may be justified right (b) or even justified left (c). Player numerals may be arranged left to right after their instrument label (b) or stacked (c). When labels are centred or justified left, it is helpful to move the numerals to the right, up to the margin brackets, so that they are close to their staves (as in column (c)).

NUMERALS FOR SHARED STAVES

On an opening page, indicate the number of players (or the numerals for all players) allocated to the shared stave. Traditional practice is to label the number of instruments, e.g. *2 Flutes* (Table 2 (a)). Subsequent pages take an abbreviation (see Table 3, p. 511), and have player numerals above individual entries where required. If two (or even three) players share a stave and always play together, there may be no need to allocate numerals in the score at all (see *Tacet woodwind and brass parts*, p. 529; also, *Staves for tacet performers: Opening page of music*, p. 521).

It is now common practice to specify player numerals in the margin from the outset (Table 2 (b)). Thus a single player on a given system can be specified in the margin without the addition of a numeral above its stave (column (c), bassoon stave). (A full stop, known technically as a full point, is needed only to separate those numerals appearing on the same line: *1.2.3* and so on.)

TABLE 2: Orchestral layout


(a) Opening page
Traditional-style labels

(b) Opening page
Alternative-style labels

(c) Subsequent page

Allegro (♩ = 100)
Piccolo
2 Flutes
Alto Flute
2 Oboes
Cor Anglais
1st Clarinet in B♭
2nd Clarinet in A
Bass Clarinet in B♭
2 Bassoons
Contrabassoon
4 Horns in F
3 Trumpets in B♭
3 Trombones
Tuba
Timpani
Percussion (2 players)
Harp
Organ
Soprano solo
Soprano
Alto
CHORUS
Tenor
Bass
Allegro (♩ = 100)
2 soli
Violin I
altri div.
Violin II
Viola div.
Cello
Double Bass
Allegro (♩ = 100)
Piccolo
Flutes 1.2
Alto Flute
1
Oboes
2
Cor Anglais
Clarinet 1 in B♭
Clarinet 2 in A
Bass Clarinet in B♭
Bassoons 1.2
Contrabassoon
1.2
Horns in F
3.4
Trumpets in B♭ 1.2.3
Trombones 1.2.3
Tuba
Timpani
1
Percussion
2
Harp
Organ
Soprano solo
Soprano
Alto
CHORUS
Tenor
Bass
Allegro (♩ = 100)
2 soli
Violin I
altri div.
Violin II
Viola div.
Cello
Double Bass
C
Picc.
Fl. 1 2
A. Fl.
1
Ob.
2
C. A.
Cl. 1 in B♭
Cl. 2 in A
Bass Cl.
Bsn. 1
Cbsn.
1 2
Hn. in F
3 4
Tpt. in B♭ 1 2 3
1 2
Tbn.
3
Tuba
Timp.
1
Perc.
2
Harp
Organ
Sop. solo
S.
A.
CHORUS
T.
B.
C
2 soli
Vln. I
altri div.
Vln. II
Vla. div.
Vc.
D.B.

Instrument abbreviation

Exact abbreviations are a matter of individual preference, but avoid ambiguous ones such as *cor* (which might be cor anglais, horn or cornet). Plurals are unnecessary.

Strictly speaking, there is no need to add a full stop after an abbreviation when its last letter is the same as that of the full word: (e.g. *vc.* but *vln*). However, it is common practice to use full stops after all abbreviations.

In English, it is usual to capitalize all first letters of a margin abbreviation, e.g. *C.A.* (Names in full can take either upper- or lower-case first letters.)

The longest abbreviation determines the size of the margin: the narrower the margin, the greater the width of the system can be: therefore, keep abbreviations short.

(See Table 3, opposite.)

Labelling transposing instruments

Usually a specific transposing instrument is described by key even when it is written in C in the score: e.g. *Clarinet in B♭* or *Clarinet (B♭)* or *B♭ Clarinet*.

Reserve the description 'in C' for specific C instruments, e.g. *Clarinet in C* and *Trumpet in C*. 'In C' should not be used as an instrumental label to indicate that the score is written at concert pitch; always state this separately. For clarity, trumpets written at concert pitch are best labelled merely as *Trumpets*: if a B♭ trumpet is intended, this should be stated in the instrumentation list.

Abbreviations of instruments defined by key may be split onto two lines to keep the margin width narrow (see Table 2, column (c), p. 509). In a score with many transposing instruments, it is useful to retain the key ('in B♭', etc.) after an abbreviation. In works with few or no transposing instruments this is likely to be unnecessary. The bass clarinet requires a label 'in B♭' after an opening page only if there are instruments in A also in use (see *Woodwind: Clefs*, p. 253).

Labelling instrument changes

Indicate an instrument change at the first available rest (see flute example, p. 507). This is the practice in an instrumental part (see *Labelling instrument changes*, p. 559). Thereafter change the instrument label in the margin of a subsequent system. Advance warning for percussion-instrument changes is usually omitted: this information is less important for the conductor.

TABLE 3: Instrument abbreviation (in English)

STANDARD LABELS FOR PAGE 1	ABBREVIATIONS
Piccolo	Picc.
Flutes	Fl./Flt.
Alto Flute	Alto Fl./A. Fl.
Oboes	Ob.
Cor Anglais	Cor Angl./C.A.
Clarinets	Cl./Clt.
Bass Clarinet	B.Cl./B. Clt.
Contrabass Clarinet	Cb. Cl./Cb. Clt.
Bassoons	Bsn.
Double Bassoon/Contrabassoon	D.Bsn./Cbsn.
Horns	Hn.
Cornets	Crt./Cnt.
Trumpets	Tpt./Trpt.
Piccolo Trumpet	Picc. Tpt.
Trombones	Tbn./Trb.
Bass Trombone	B. Tbn./B. Trb.
Timpani	Timp.
Percussion	Perc.
Celesta	Cel.
Piano	Pno./Pf.
Violin(s)*	Vln./Vn. (Vl. is confusing)
Viola(s)	Vla./Va.
Cello(s)	Vc./Vlc./Vcl.
Double Bass(es)/Contrabass(es)	Db./D.B./Cb./C.B.

* plurals are optional

Score order of instruments

Standard orchestra

Orchestral and large ensemble scores group instrumental sections in the following order (from top to bottom): woodwind, brass, percussion, keyboards, strings.

Instrumental staves remain in the same position in relation to each other throughout a score, regardless of how few staves are present on a system. For example, where the 1st violin line is the only stave of the string section, its stave is the lowest in the score.

Place horns above the trumpets, at the top of the brass section. Saxophones, either singly or as a group, are placed either between clarinets and bassoons, as part of the woodwind section (this is the commonest practice for a single saxophone) or else as a separate section, with a separate margin bracket and barlines, between bassoons and horns (this is most common for a group of saxophones).

(See also *Stave allocation for woodwind and brass*, p. 530.)

Place a timpani part above any percussion staves. Arrange percussion staves or lines in player order (see *Score order of players*, p. 272).

Staves for keyboard, harp and plucked stringed instruments appear below percussion and above the strings. There is no standard order of instruments – any musical association with an instrument on an adjacent stave may influence the order: e.g. harp with strings, piano with percussion. As general guidelines:

- it is usual to place staves for plucked strings (e.g. guitar and mandolin) above keyboard parts
- group together like instruments
- group together acoustic instruments
- group acoustic instruments above electronic keyboards
- place staves for an organ part at the bottom of the section

Harp	and	Guitar
Celesta		Mandolin
Piano		Harp
Chamber Organ		Piano
		Electronic Keyboards

Place voices and instrumental soloists above the strings. The stave for a solo singer appears above a chorus, not below it (an instrumental soloist would be placed below chorus lines, i.e. immediately above the violins).

(See Table 2, p. 509; for the position of an electronic part in a score, see *Layout of the electronic component*, p. 596.)

STAVE LAYOUT FOR A DOUBLING PART

A player doubling two or more instruments (including percussion) should have only one stave (or one pair of staves in the case of a braced part) – further staves suggest two separate players.

(See also *Stave allocation for doubling instruments*, p. 531.)

When one player alternates between two keyboard instruments (e.g. piano and celesta), both instruments share the same braced part. Label the relevant instrument in the margin; at an instrument change that occurs mid-system, centre a label between the two staves. If a player plays both keyboards simultaneously, label each stave accordingly (see *Player with two keyboards*, p. 330).

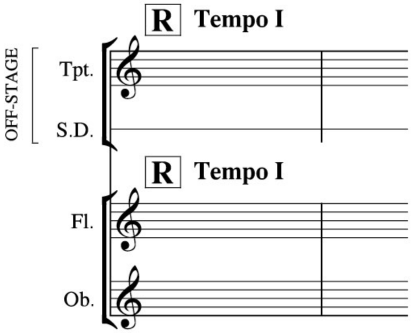
Individual groups within an ensemble

When an orchestra or ensemble is conceived as separate groups to be seated apart, group the instruments in the score to reflect this. Place the instrumental staves within each group in orchestral order (see extract from Carter's *A Symphony of Three Orchestras*, p. 517). This applies also to a double string orchestra set-up (see Table 6, p. 535).

When a group of players is conceived as a single unit seated conventionally, preserve conventional stave order – even if there are two or more conductors whom different performers follow at different times. A vertical margin bracket enclosing a conductor or group label may indicate which performers follow which conductor (in the manner that the Carter extract (p. 517) labels the separate groups).

OFF-STAGE PERFORMERS

In this section, 'off-stage' refers to players who are separated from the rest of the ensemble, including any player directed to move on-stage in a theatrical work. Staves for players who remain off-stage for a whole movement/scene/piece are placed to the top of the score, above the rest of the ensemble. Their own order of staves follows orchestral order. Enclose the 'off-stage' staves in a thin vertical bracket to the left of the instrument labels, together with an appropriate description such as *on-stage/off-stage/out of sight/distant*:



The stave of a player who moves off-stage during the course of a movement remains in its conventional position.

Small ensembles

In wind and brass ensemble music, the position of the horn stave reflects the instrumental tessitura of the ensemble, high to low – see Table 4, opposite, layouts for wind quintet (a), wind octet (b), brass quintet (c) and mixed ensemble (g).

In a small mixed ensemble, arrange the staves to reflect the instrumental tessitura, from high to low (g). Arrange instruments of similar range in orchestral order (h). When an ensemble has (at least) pairs of instruments from two instrumental families, arrange the staves in orchestral order – (i) and (j).

SCORES WITH KEYBOARD

When a score for small ensemble (of about six players or fewer) functions as a playing score for a keyboard player, place the braced part at the bottom of the system – see layouts for piano quartet (e) and mixed ensembles (h) and (k). It is easiest for a keyboard player to identify his or her staves in this position.

In a score for larger ensemble, a keyboard player requires an individual part since page-turning becomes too frequent to be practical and stave size, most likely, too small. In this case, the braced part retains its orchestral position (i).

SCORES WITH A VOCAL LINE

In a small ensemble with voice, the vocal stave appears at the top of the system (j). In a large ensemble, the vocal stave usually retains its conventional orchestral position above the strings.

When a small ensemble score has a keyboard as well as a vocal part, place the vocal line directly above the keyboard, as this is helpful for the keyboard player (k). However, for a trio combination of voice, melody instrument and keyboard, it is usual to have the voice on the top stave, as it is not too far from that of the keyboard.

(See also *Stave sizes: Chamber works*, p. 523.)

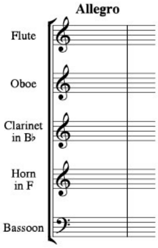
Score brackets and barlines

Curly braces

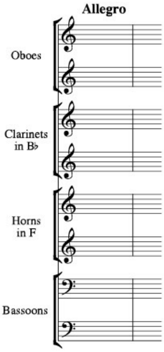
The curly bracket, also called a brace, connects the staves of instruments that use two staves: most commonly keyboard and harp. Extend the brace to three or four staves for piano writing if necessary (see Table 1 (c), p. 331),

TABLE 4: Small ensembles

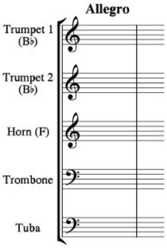
(a) wind quintet


Allegro
Flute
Oboe
Clarinet in B♭
Horn in F
Bassoon

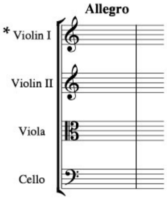
(b) wind octet


Allegro
Oboes
Clarinets in B♭
Horns in F
Bassoons

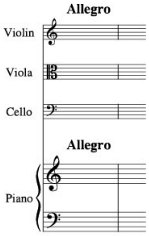
(c) brass quintet


Allegro
Trumpet 1 (B♭)
Trumpet 2 (B♭)
Horn (F)
Trombone
Tuba

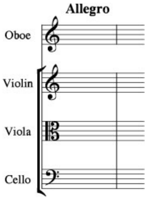
(d) string quartet


Allegro
* Violin I
Violin II
Viola
Cello

(e) piano quartet


Allegro
Violin
Viola
Cello
Allegro
Piano

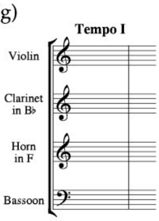
(f) oboe quartet


Allegro
Oboe
Violin
Viola
Cello

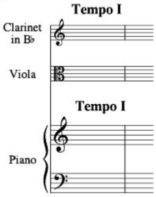
* labels optional

Mixed ensembles

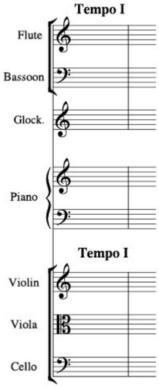
(g)


Tempo I
Violin
Clarinet in B♭
Horn in F
Bassoon

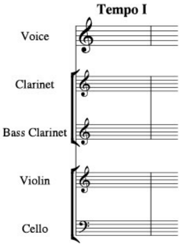
(h)


Tempo I
Clarinet in B♭
Viola
Tempo I
Piano

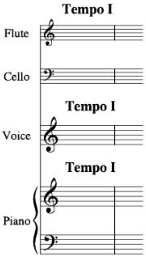
(i)


Tempo I
Flute
Bassoon
Glock.
Piano
Tempo I
Violin
Viola
Cello

(j) quintet with voice†


Tempo I
Voice
Clarinet
Bass Clarinet
Violin
Cello

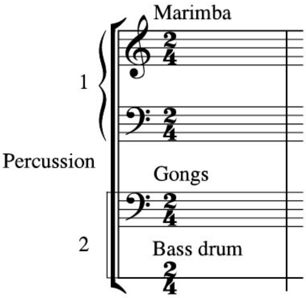
(k)‡


Tempo I
Flute
Cello
Tempo I
Voice
Tempo I
Piano

† as Webern: 6 Songs, Op.14

‡ as Ravel: *Chansons madécasses*

but not to the pedal stave in organ music (see *Organ notation: System layout*, p. 342). The brace may connect two or more staves of like instruments (or like voices), but this is a traditional style now rarely used in orchestral music: it is more effective visually – and space-saving – to reserve it for joining the staves of a single instrument:



A brace should only ever be used as the outermost bracket (see example, p. 518).

If, for space-saving purposes, keyboard or harp parts are reduced to one stave, use a compressed brace to the height of the one stave – this makes the braced part easier to recognise (see *Minimum number of staves*, p. 523).

Square brackets

The square bracket is beam thickness and has curved ends. In an orchestral score it joins the staves of each instrumental section. When a score is divided into separate ensemble groups or vocal choirs, the square bracket joins the staves of each group individually (see Carter extract, opposite).

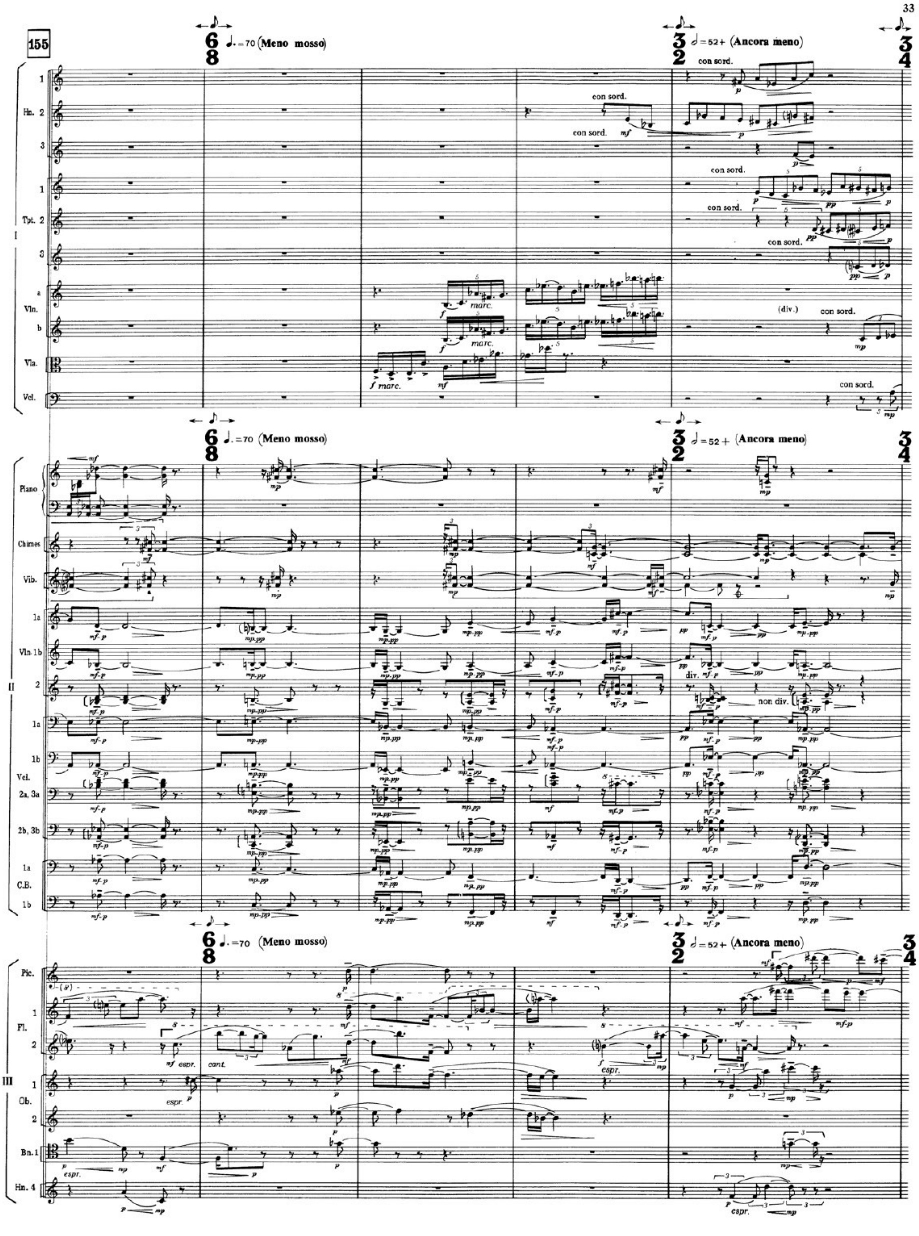
An instrumental section of only one stave takes a square bracket. A score system of only one stave takes a square bracket as well as a systemic barline (see *The systemic barline*, p. 521).

The bracket is optional for timpani and a single percussion line or stave (see *Margin brackets*, p. 533). These are the only instrumental staves in an orchestral score without either square or curly margin brackets, apart from soloists (see Table 2, p. 509).

A concerto soloist, concertante group or solo vocal line does not take a margin bracket, since none of these forms part of a larger group.

Groups of solo singers do not need to be bracketed together, and should not be so when a choir is present, as a bracket distinguishes the choir staves (see *Layout with soloists*, p. 464).

Carter: *A Symphony of Three Orchestras*


33
155
Meno mosso
Ancora meno
con sord.
marc.
div.
non div.
espr.
cant.
Hn.
Tpt.
Vln.
Vla.
Vcl.
Piano
Chimes
Vib.
C.B.
Pic.
Fl.
Ob.
Bn.
I
II
III

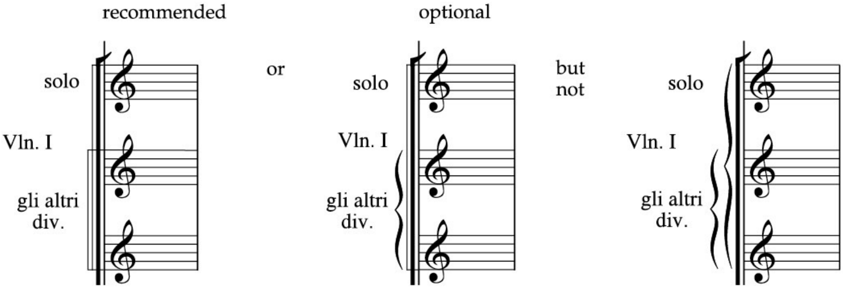
Secondary brackets

A thin square bracket is recommended as a secondary bracket for joining the following staves:

- two or more like woodwind and brass instruments, e.g. piccolo, flute and alto flute (see Table 2 (a), p. 509); alternatively, two or more of the same instrument (Table 2 (b) and (c))
- two staves and/or additional lines required by a single percussionist for different instruments (see example, p. 516)
- like voices (see Table 1, first column, *Divided single choir*, p. 463)
- a divided string line

1st and 2nd violins are regarded as separate sections and are not joined by a secondary bracket.

In a divided string part, a further bracket joins two or more staves of solo players or of the rest of the section (*gli altri/le altre*). The square bracket uses margin space more economically than the brace and allows for further sub-brackets:



(See also *Divided string section layout*, p. 534.)

Barring through a score

Barlines join instrumental sections, separating them in exactly the same places as margin brackets. This separation helps to make the position of an instrument on the page clear. Barlines are continuous from the top to the bottom of the system only where the margin brackets are likewise continuous.

When an ensemble comprises more than two separate groups, barlines may join all staves of each group, to clarify the group separation (see Carter extract, p. 517; also, Table 6 (a), *Double string orchestra*, p. 535).

Each braced part takes separate barlines, as does a concerto soloist.

Each vocal stave takes separate barlines, so that barlines do not intersect the text.

(See also *Divided string section layout*, p. 534; also, *The systemic barline*, p. 521.)

Small ensemble scores

Where there are only a few performers, there are exceptions to the orchestral barring principles.

Margin brackets and barlines join all the staves of a small mixed ensemble: see Table 4, layout (g), p. 515.

Where there are pairs of the same instrument, clarify the pairings with separate margin brackets and barlines: see wind octet layout (b).

In a small ensemble that includes a braced part, square margin brackets are unnecessary for the other parts, as they will have little visual impact: see piano quartet layout (e), also mixed ensembles (h) and (k). Each single-stave part has separate barlines. (Some editions bar these together; others also bracket them together. Joined barlines become visually more helpful where there are four or more single staves, as they clarify the system breaks.)

Where all instruments except one are members of the same family, leave the single instrument without a margin bracket: see layouts (f) and (i).

Enlarging time-signature symbols

Time signatures placed within each stave as normal are adequate under most conditions.

When a full score that requires a very small stave size has many time-signature changes and many short bar lengths, it is acceptable to enlarge time signatures and to move them out of the staves. This can be an elegant solution to legibility issues, and makes the score less cluttered. Outside the stave they do not need to be much taller than stave height since their unique bold type makes them conspicuous.

Enlarged time signatures are best placed between the staves of instrumental families, where it is useful to have the extra vertical space they require (see *Separating instrumental sections visually*, p. 520). To place them at the top and bottom of the score requires more vertical space, and potential collision with tempo markings.

Avoid very large or elongated time signatures placed across several staves, as these dwarf all other notation and distort the horizontal spacing on the page. This in turn interrupts the flow of the music, forcing notes on either side of the barline a long way apart. An enlarged time signature is also likely to obstruct ties, slurs and hairpins.

Enlarged time signatures may be positioned slightly to the right of the barline (see Carter extract, p. 517). Alternatively, they may be centred on the barline: this means that the first beat of a bar need not be displaced by the time signature, thus saving horizontal space.

Enlarged time signatures are redundant in an unconducted score.

Placing tempo and rehearsal marks

In orchestral scores, tempo markings appear above the top stave, and also above the string section, below any vocal or solo lines (see Table 2, p. 509).

Where the ensemble is divided into two or more groups, place tempo markings above each group (see Carter extract, p. 517).

In small ensemble scores, place tempo indications once, above the top stave. Where a keyboard player will be playing from the score, and there is more than one intervening stave between the tempo indication and the keyboard part, restate the tempo indications above the keyboard as well, so that they are sufficiently conspicuous: see Table 4, p. 515, layouts for piano quartet (e) and mixed ensembles (h) and (k). Where a singer is to read from a full score in which the vocal stave is positioned in the middle of the system, place additional tempo markings above the vocal stave: see Table 4, layout (k).

Place rehearsal marks in the same positions as tempo indications (above them where necessary). It is only ever rehearsal marks and first- and second-time ending indications that go above tempi (see *Rehearsal marks*, p. 484, and *First- and second-time endings*, p. 236).

Page layout

Separating instrumental sections visually

In an orchestral score, it is helpful to add slightly to the space separating instrumental sections. The space between orchestral sections appears, in any case, to be greater than the space between staves within the section, since barlines do not run through this space.

The widest space should be above the strings: this will help to accommodate a high 1st violin line, as well as the tempo indications and rehearsal marks that go above this section (see Table 2, p. 509).

Defining systems

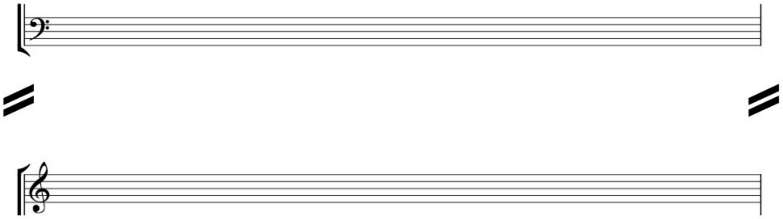
THE SYSTEMIC BARLINE

The depth of a system is defined solely (in many cases) by the barline that joins the left-hand edge of all staves of a system. Except in a homogeneous ensemble (e.g. a string quartet), this will be the only barline joining the whole system.

The systemic barline should be used to define the system depth at all times, including where a bar is divided over a page or system break (see *Splitting bars*, p. 489).

SYSTEM DIVIDERS

A pair of thick diagonal lines, known as system dividers or separation marks, divides off two or more systems of orchestral (or ensemble) music on a page. Place the dividers midway between the systems, with the strokes protruding halfway into the margin:



Where systems can be well separated, the dividers may be placed on the left-hand side of the page only; where systems are very close together, it is visually helpful to add them on both sides of the page (see also *Distance between staves*, p. 488).

Dividers are not normally used in chamber scores or choral music: in general all instrumental or vocal staves are retained on each system, so that the layout is regular, and it is assumed that sufficient space has been allowed between systems for dividers to be unnecessary.

Staves for tacet performers

OPENING PAGE OF MUSIC

It is a convention to present staves for all performers on an opening page of score. This accustoms the reader to the layout of the individual piece. It is essential for establishing the order of staves in an unconventional set-up, such as two instrumental groups. Any number of the same instrument may share a stave when resting (i.e. *tacet*) in order to reduce the number of blank staves –

even if these instruments never all share a stave altogether when playing (e.g. four horns). Only where forces are very large is it acceptable to include merely the staves of performers actually playing or singing. This is better than a page full of very small staves comprising mainly resting players – as long as the score provides a complete instrumentation list.

AFTER THE FIRST PAGE OF MUSIC

It is standard practice to include only staves of performers who are actually playing or singing on any given system (but see also *Filling out a score to create even page depths*, below). Omit the staves of *tacet* performers until their re-entries so as not to clutter the score with blank staves. Where these redundant staves are eliminated, any number of reduced-stave systems may be combined on a page.

SMALL ENSEMBLE SCORES

It is usual to retain all staves throughout a score. Remove a stave only if an instrument or voice is *tacet* for an extensive period.

If different movements use different forces, state the complete forces in the preface and include only the staves of the musicians required for each movement.

Filling out a score to create even page depths

Whether a score comprises one or more systems, the ideal layout is to have a similar number of staves on each page.

It is better to fill out short systems with some blank staves (*tacet* parts), so as to balance the number of staves on a facing page, rather than suddenly to shorten the page depth. Likewise, the distance between systems should not be too large: a page looks unbalanced with too much blank space in the middle.

The *tacet* staves to include are those of a performer who has just finished, who is about to re-enter or who is *tacet* for only a few systems. However, do not include copious numbers of blank staves as these are distracting, as are staves that enter and disappear at random.

Sometimes it is useful to retain blank staves so that the position of a performer remains on the same horizontal level across facing (or between neighbouring) pages. (This is helpful for the conductor.) For example, where fewer staves are required for only a few bars but the system cannot be reduced sufficiently to fit two systems onto a page, retain a *tacet* string section, so that the stave levels of other instruments do not change too abruptly from page to page.

(See also *Vertical spacing of staves*, p. 487.)

Stave sizes

An orchestral score uses the same stave size for all performers, although cue-sized staves (staves that are three-quarters of the full size) may be used for notating electronic sounds (see *Stave size*, p. 597).

CHAMBER WORKS

When a score doubles as a performance part – usually for a keyboard player – the staves for this performer should be larger than the other staves, so that they stand out from the rest. The stave size for other instruments is about three-quarters of the larger size – these staves are, in practice, cue lines for the performance part (see Table 4, p. 515, layouts (e), (h) and (k)).

If a solo singer must read from the full score (i.e. when no separate vocal score has been created) it may be helpful, similarly, to have the vocal stave larger than the instrumental lines (see Table 4, layouts (j) and (k)).

VARIABLE STAVE SIZES

Where a score requires a very small stave size (under 4 mm) to accommodate large forces, slightly larger staves may be used for pages with fewer instruments, to help legibility. Avoid too big a contrast between sizes, since even a difference of 1 mm in stave height can look disconcerting between facing pages.

(See also *Stave sizes*, p. 482.)

Minimizing vertical space requirements

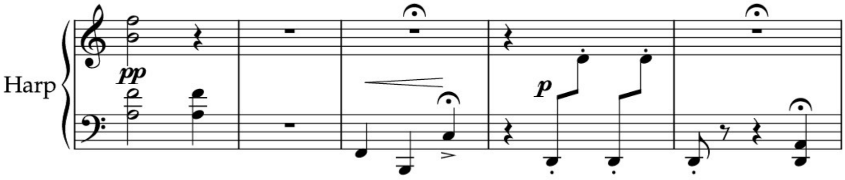
A lack of vertical space can be a major problem in scores for large forces. The following section provides some space-saving solutions (see also *Stave sharing*, p. 525).

Minimum number of staves

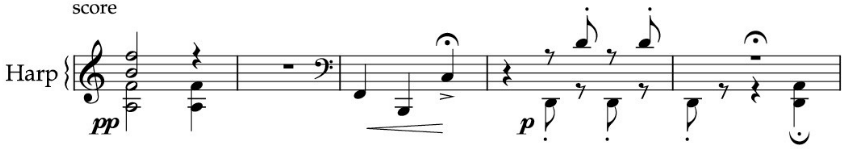
Any number of the same woodwind or brass instrument can share a stave, as long as they have identical transposition (see also *Stave separation for transposing instruments*, p. 531).

Orchestral keyboard and harp parts may be reduced to a single stave in the score. Where both hands play together, notes for the right hand take up-stems, and notes for the left hand take down-stems:

playing part



score



This is purely a space-saving device; the part itself should be notated conventionally, on two staves.

Two percussion players may share a stave, but the timpani part should not share a stave with any separate percussion player (see *Stave allocation for percussion*, p. 533).

1st and 2nd violins always have separate staves, even when they are playing in unison, as do cellos and double basses. (Only in old editions do cellos and double basses share a stave.) Any number of string divisions within a section may share a stave (see *Divided string section layout*, p. 534).

Minimum ledger lines

Instruments that use more than one clef may be written in a clef that minimizes notes on ledger lines.

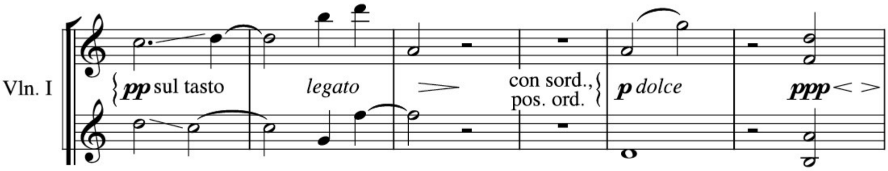
A transposing instrument that is written at concert pitch in a score may be notated in both treble and bass clefs to reduce the number of ledger-line notes.

Octave signs may be used freely for any instrument, as long as the score is not used to play from.

(These practices should not be transferred to instrumental parts – see *Clefs*, p. 562.)

Sharing performance instructions

Adjacent staves may share technical instructions, dynamics and expression marks. These should be centred between the two staves and accompanied by a small curly brace:



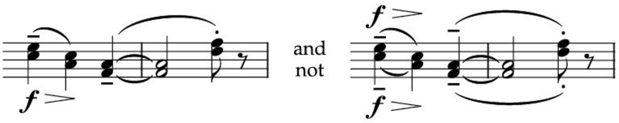
Where an instrumental section or even the whole ensemble has common performance instructions, it is acceptable, in cramped conditions, to place one instruction for the whole group at the top of the section. The instruction must be relevant to every player of the designated group and should be labelled *tutti/tutti brass/all violins*, and so on. However, where there is room, it is always better to give the information to individual pairs of staves to ensure that the instruction is included when instrumental parts are extracted from a score.

Stave sharing

The following section refers to two or more players – or a divided string section with only single notes per division – who share a stave.

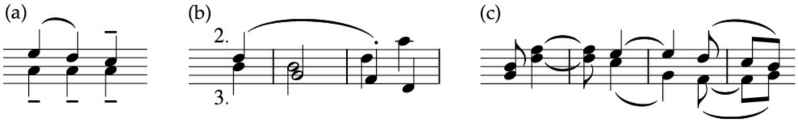
Sharing stems

Two or more parts in rhythmic unison share stems, rests, articulation, phrasing and dynamics (single-stemmed phrases should not have two sets of slurs or articulation):

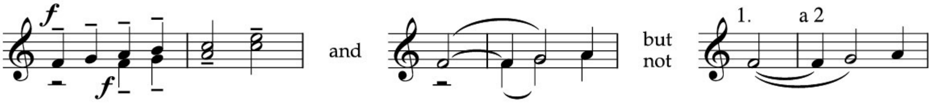


(See also *Rests*, p. 528.)

Any differences in articulation, phrase length or dynamics between the parts require separate stems (see following example, (a)). The higher player takes up-stems, the lower player down-stems, including when they overlap (b). When only one part is tied, the tied note must take a separate stem (c):



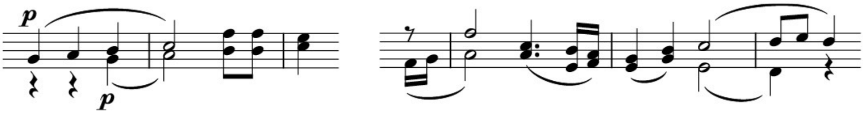
Where a second part joins another in the middle of a phrase, it must take a separate stem, since it requires either its own dynamics or else has an independent attack and thus requires its own phrasing:



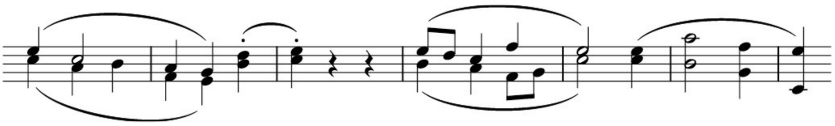
(See also following example; also, *Dynamics*, p. 528.)

INTERCHANGING SINGLE AND DOUBLE STEMS

To save space and to keep the score uncluttered, it is acceptable to return to single stems for all unison rhythms that share identical phrase length:



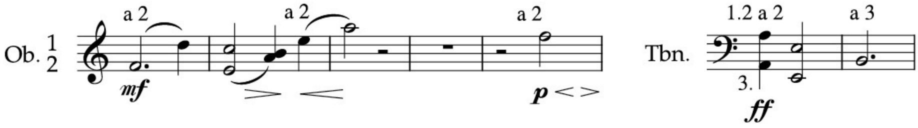
However, where parts occasionally differ in rhythm (as in bars 1 and 4, below), it may be clearer to use two stems for an entire phrase, if room allows, rather than to keep swapping between single and double stems. Change stemming between phrases rather than at the barline (unless the two coincide):



Unisons

The Italian *a 2*, *a 3*, and so on, indicates the number of doubling players in unison. (Note that *à* is the French spelling.) For strings, a single line is played by the whole section unless otherwise indicated, and is marked *unis.* after divided playing (not *a 2*, etc. – see *Labelling divisions*, p. 428).

So long as the number of players is indicated above the entry, instruments playing in unison may be written as a single line with single stems. It is essential to state the number of wind or brass players for a single-line part at each respective entry (i.e. after division, or when one or more players has been *tacet*) so that it is always clear how many instruments play:



(See also example for horn section under *Placing player numerals*, p. 528.)

In a complex score, it is helpful to repeat the doubling indication in brackets: (*a 2*) and so on, at the beginning of a new system or after a page-turn.

For occasional unison notes or short phrases, use the following notation in order to minimize labelling.

In woodwind and brass writing, a unison for two instruments must show either two noteheads (a) or two stems (b). In string writing, the unison must show two stems (as in (b)) since two noteheads on a single stem indicate that the player should play on two strings simultaneously (see *Double-stopping*, p. 396):

(a) unison notes as two noteheads (except strings)

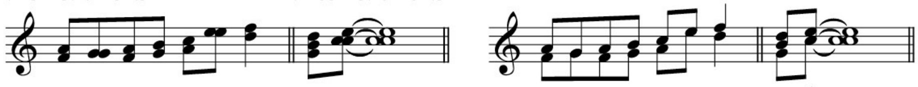
two instruments

three instruments

(b) unison notes as two stems (any instrument)

two instruments

three instruments

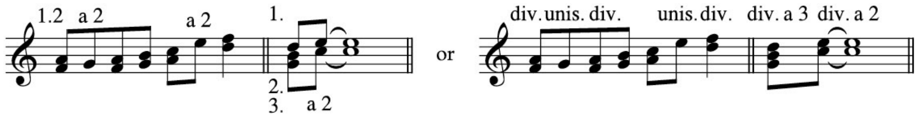


C joined by two stems to indicate unison

rather than

single-instrument parts (e.g. oboes)

multiple-instrument part (e.g. 1st violins)

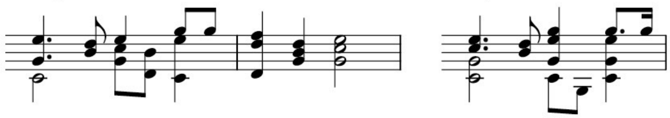


Three (or more) parts on a stave

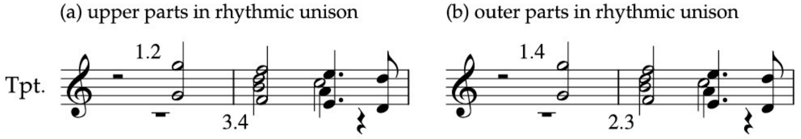
As many parts as are in rhythmic unison share stems. A middle part may change stem direction from chord to chord as necessary:

three parts

four parts



Where there are four parts, players (or divisions) 1 & 2 take up-stems; players 3 & 4 take down-stems ((a) below). However, where outer parts are in rhythmic unison, they can be stemmed together, provided that the player allocation is labelled (b). Label each part at the end of its stem:


(a) upper parts in rhythmic unison

(b) outer parts in rhythmic unison

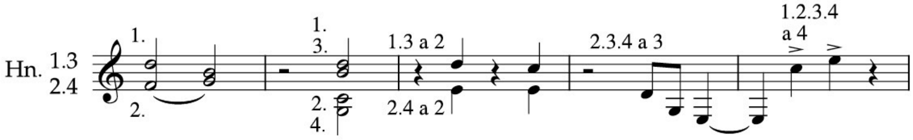
Where part-writing is rhythmically intricate or the lines overlap (as above), it is better to separate them onto a pair of staves. (They can be re-combined onto a single stave when the writing becomes simpler.)

(See also *Vertical alignment*, p. 490; *Horizontal spacing in score format*, p. 490, and *Accidentals relevant to more than one part on a stave*, p. 79.)

Placing player numerals

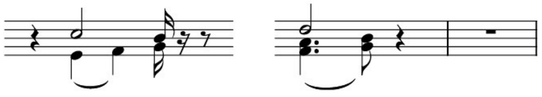
Where there is room, place the numerals for two players on opposite sides of the stave, closest to their notes (see bar 1, below), or otherwise above the stave.

Where there are two stems, place numerals to the left of their stems, stacked if there is room (bar 2), otherwise consecutively. Numerals for unison players should appear side by side (bars 3–5):



Rests

Separately stemmed parts share rests wherever possible. All parts share a single whole-bar rest:



(See also *Placing rests in double-stemmed writing*, p. 36.)

Dynamics

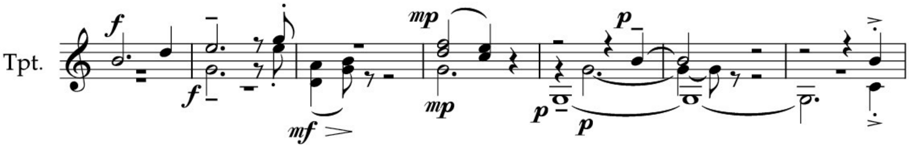
Non-simultaneous entries require individual dynamics. This is especially important so as to ensure that dynamics are not omitted in the part extraction process. The following cases are exceptions.

Two separately stemmed parts entering together may share a dynamic (see following example, bars 4 and 7). They require separate dynamic indications only when their dynamics differ.

When there are closely following successive entries, include only the initial dynamic so as not to clutter the score (bar 5, below).

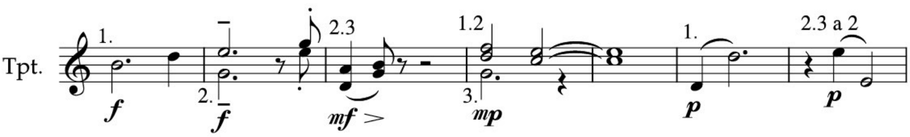
Tacet woodwind and brass parts

Where there are two or more parts on one stave, the traditional approach is to assign a whole-bar rest to each *tacet* player. The placing of the rests above, below or between the other parts indicates player allocation: in effect all parts are indicated on the stave. This renders player numbers redundant:



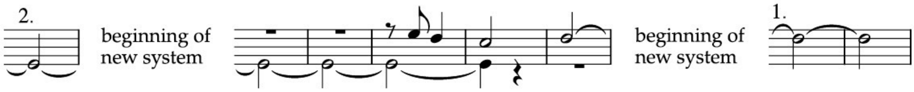
(Note the convention that, within a bar, two parts that share a stem also share a rest – bar 3, above.)

An alternative approach is to remove the whole-bar rests of *tacet* players and, instead, to assign player numbers where fewer than all parts play. This layout is well suited to solo passages for single players. Indicate *tacet* parts with rests in the bar alone in which they join or leave a passage. Solo passages (or two players in rhythmic unison who enter together, as in bar 3, below) take ordinary stem direction in all other bars, saving vertical space:

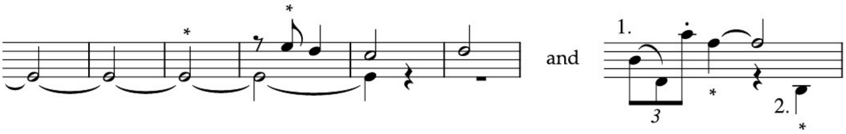


DOVETAILED ENTRIES

An extended passage for one player takes conventional stem direction. Where a second part joins or leaves such a passage, the traditional approach is to reverse stem directions at the system break to take account of the beginning or end of the other part. This preserves two parts for the length of the system:

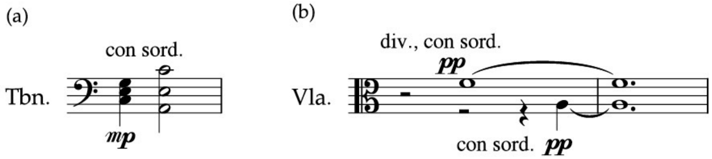


Where vertical space is very limited, it is acceptable to reverse stem directions mid-system, so long as a rest intervenes between two stems that will, as a result, be in the same direction (marked * below). The rest functions to visually separate two up- or two down-stems that refer to different parts:

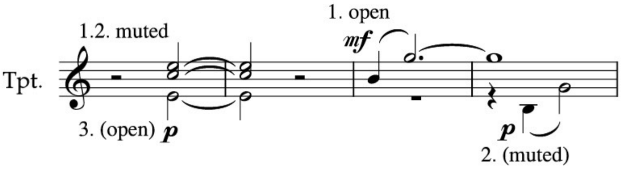


Mutes

Be careful to clarify which instruments are muted. Parts that share stems share performance instructions. Thus a single mute indication above a single-stemmed part means that all players are muted (a). Where parts have separate stems, for clarity place mute indications above the stave for up-stemmed parts, and below the stave for down-stemmed parts (b):



Where muting instructions are different, parts in rhythmic unison (i.e. which would otherwise share stems) require separate stems. It is important to clarify if an instrument is not muted amongst a group of muted ones:



Stave allocation for woodwind and brass

Doubling instruments in orchestral music

The principal player (player 1) does not double another instrument if there is a second or third player who can do so. The last-numbered player is the first player to double. When a piece requires more than one doubling instrument, it is best for two players to double on one instrument each. Thus a three-player flute section would be distributed either as player 3 doubling piccolo and player 2 doubling alto flute, or vice versa.

Where two players both play the same doubling instrument, the last-numbered player is usually labelled as the principal doubling instrument, so that Flute 3 = Piccolo 1, Flute 2 = Piccolo 2.

Where there are only two players and they both double on the same instrument, they can retain their own player numbers to avoid confusion, e.g. Clarinet 1 = Bass Clarinet 1, Clarinet 2 = Bass Clarinet 2.

Stave separation for transposing instruments

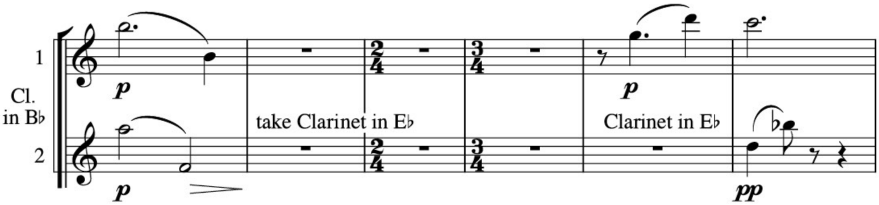
Instruments with different transpositions should not share a stave, even when the score is written in C. This includes instruments with octave transpositions – e.g. a flute should not share a stave with a piccolo. Thus a player who otherwise shares a stave with other players of the same instrument will need a separate stave when changing to an instrument with a different transposition (see *Stave allocation for doubling instruments*, below; also, *Stave layout for a doubling part*, p. 512).

NON-DOUBLING PLAYERS

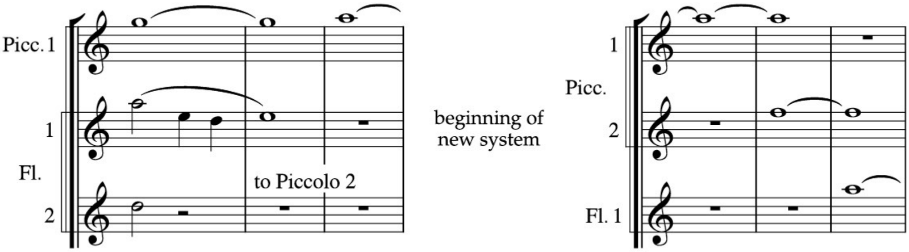
Where an instrument with a higher register than the principal instrument does not double the principal instrument (e.g. an entire part for piccolo or E♭ clarinet), place its stave above the rest of the section, even though it will be played by a second, third or fourth player.

Stave allocation for doubling instruments

The stave of a player who doubles on a higher-registered instrument usually remains below the principal instrument, regardless of which instrument he or she is playing. Thus the doubling player's stave does not change position in the score during the course of the piece. It is very clear in this arrangement to see which player plays the doubling instrument:

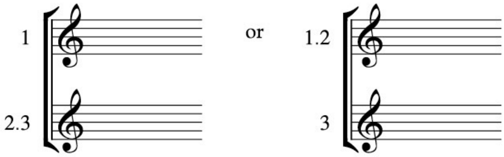


However, in some cases it is preferable for the doubling instrument's stave to move above that of the principal instrument, e.g. where there is a piccolo stave (a non-doubling player) at the top of the section and another flautist changes to piccolo. The piccolo staves are thus adjacent (or else both piccolos may share a stave – see example *Doubling player moving stave*, below):



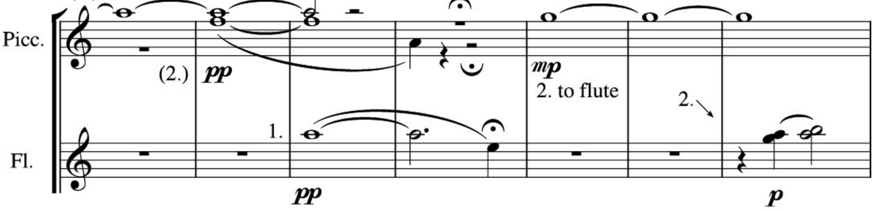
Distributing three or more parts between two staves

Allocate parts in numerical order, distributing three players on two staves as follows, with the single part that has the most intricate writing on a stave of its own:



The middle player's part may move stave in a score, preferably between systems. Such a part should move stave mid-system only when it changes to an instrument with a separate transposition. In this case, give a clear indication of where this happens. It is very important to label the parts carefully so that there does not appear to be an additional player:

Doubling player moving stave



Brass

It is an orchestration convention to score horns 1 and 3 (and any further odd-numbered players) in a higher register than players 2 and 4 (and any further even-numbered players). Consequently, in a score, horns can be grouped either in numerical order of players or with higher players together (1, 3) and lower players together (2, 4). For the sake of clarity, keep the chosen grouping consistent throughout the score. There is an obvious advantage in having the players that most frequently play in unison positioned on the same stave.

The bass trombone should not share a stave with tenor trombones if the latter use the tenor clef. For reasons of space, in a score requiring three trombones and tuba, the tuba may share a stave with the bass trombone. (Of orchestral instruments, except percussion, only the tuba may share a stave with another instrument.)

Stave allocation for percussion

As a general rule, the timpani part appears on a separate stave above the percussion section. However, where timpani form part of one percussion player's group of instruments, place the timpani stave within the percussion section.

Each player in the percussion section has a line, group of lines or stave on which all of his or her instruments are placed. (See *Layout of instruments of definite and indefinite pitch for one player*, p. 287; for tuned percussion, see *Number of staves for one player*, p. 276; for instruments of indefinite pitch, see *Multiple-instrument part (one player)*, p. 284.)

Under cramped conditions, two players with instruments of indefinite pitch may share a stave in a score, provided that they have separately stemmed parts (see *Two players on one stave*, p. 288).

Lines or staves for each player need only appear as required. If all lines or staves appear throughout, then there is no need to indicate player numbers (see Table 5, layout (b), p. 534).

(See also *Player number allocation*, p. 271.)

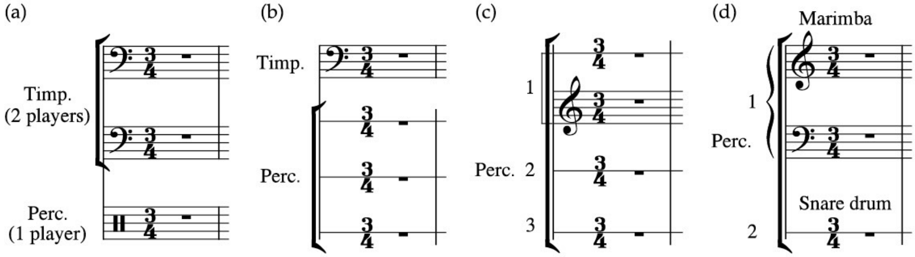
Margin brackets

A single-player timpani part (i.e. a single-stave part) or a single-stave (or single-line) part for percussion does not require a margin bracket, since there are no other staves to join together. (If a single timpani stave does have a margin bracket, it is separate from a percussion-section bracket.) Two timpani players take a stave each, joined by a margin bracket (see following example (a)).

A square bracket joins the staves or lines of the percussion section, excluding the timpani stave (b).

Where a player requires lines additional to a single stave, a secondary bracket joins these (c). An instrument that appears on two staves should take a curly brace (d):

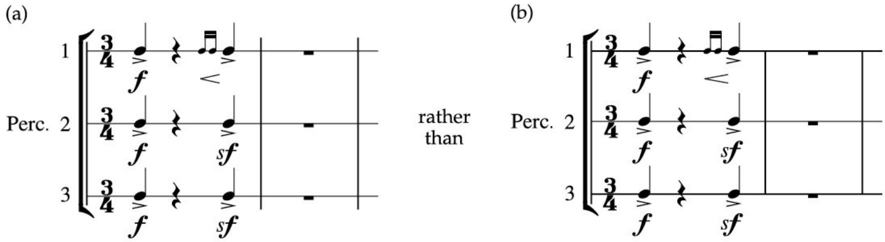
TABLE 5: Percussion section layouts



Barring

The timpani stave(s) should take separate barlines from the percussion section.

All percussion staves or lines are joined by a continuous barline. Where there are two or more players and the parts are on single lines, it is clearest for the barlines to go beyond the outside lines (a) rather than to stop with the top and bottom line (b):



(See also *Percussion playing-score layout*, p. 588; also, *Playing score*, p.538.)

Divided string section layout

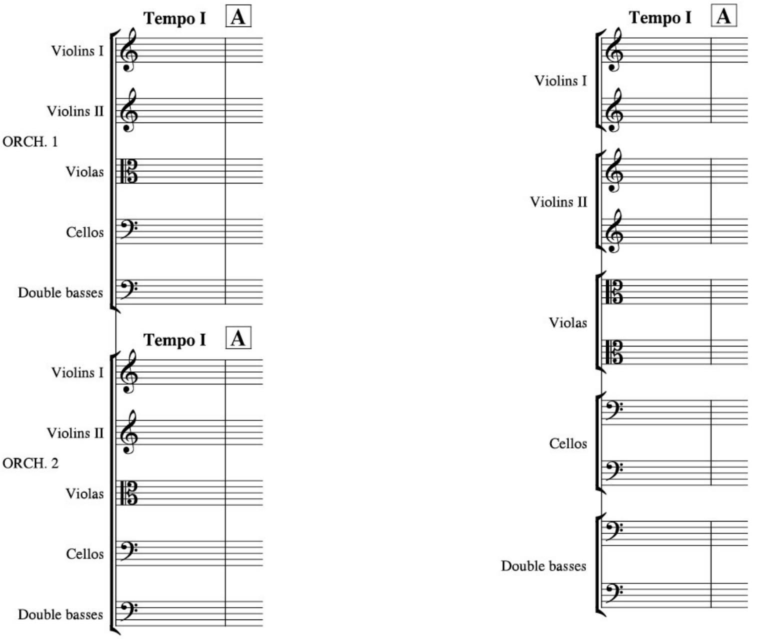
The stave arrangement should reflect the string section grouping.

A double string orchestra separates two groups of string players (see Table 6 (a), opposite). For a multi-divided single string orchestra, each divided part takes a group of adjacent staves (b). Where each member of the section (1st violins, 2nd violins, etc.) has several staves, and especially where the number of staves allocated to these sections changes from system to system, each may take separate barlines, for clarity. This is particularly useful in a piece

TABLE 6: String section layouts

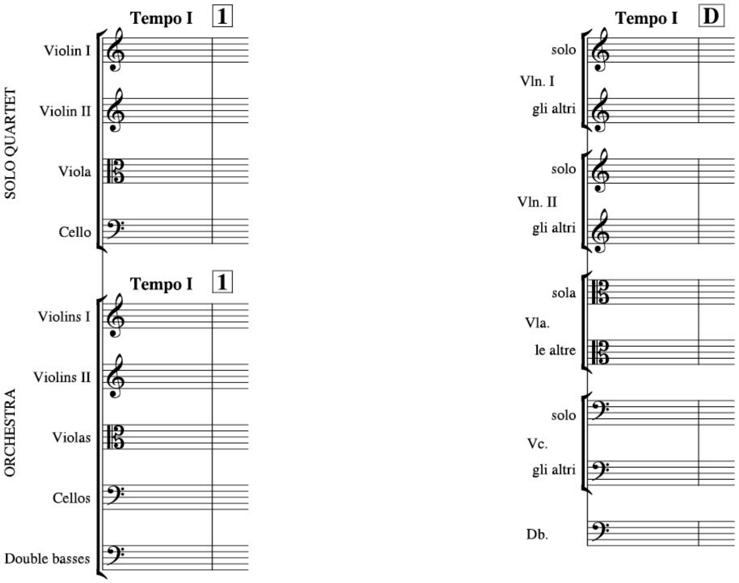
(a) double string orchestra
(antiphonal seating arrangement)

(b) divided string orchestra
(non-antiphonal arrangement)


Tempo I
A
Violins I
Violins II
ORCH. 1
Violas
Cellos
Double basses
Tempo I
A
Violins I
Violins II
ORCH. 2
Violas
Cellos
Double basses
Tempo I
A
Violins I
Violins II
Violas
Cellos
Double basses

(c) string orchestra with solo quartet

(d) string orchestra with occasional soloists

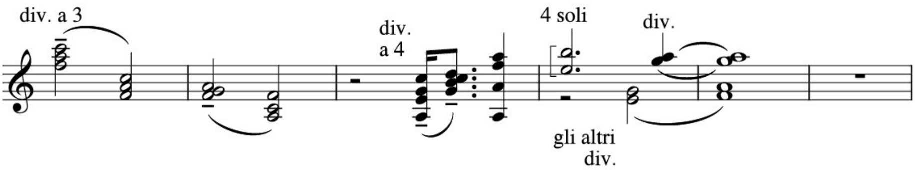

Tempo I
1
Violin I
Violin II
SOLO QUARTET
Viola
Cello
Tempo I
1
Violins I
Violins II
ORCHESTRA
Violas
Cellos
Double basses
Tempo I
D
solo
Vln. I
gli altri
solo
Vln. II
gli altri
sola
Vla.
le altre
solo
Vc.
gli altri
Db.

for strings alone where there are no other orchestral sections from which the strings, as a group, need to be visually separated ((b) and (d)).

Staves for a group of players who play as soloists throughout a work appear above the rest of the string staves (c). Staves for occasional soloists from the string body appear at the top of their own instrumental sections (d): see Table 6, p. 535.

Division on a single stave

In a score, all divisions of a string line may be notated on one stave, including an occasional solo, so long as the part distribution is clear. Place all division indications above the stave, except for those that affect exclusively a down-stemmed line. The following is an extreme example of compactness:



(See *Labelling divisions*, p. 428; for distributing a divided string line between individual players, see *Player allocation*, p. 429; see also *Double-stopping and a divided line*, p. 428.)

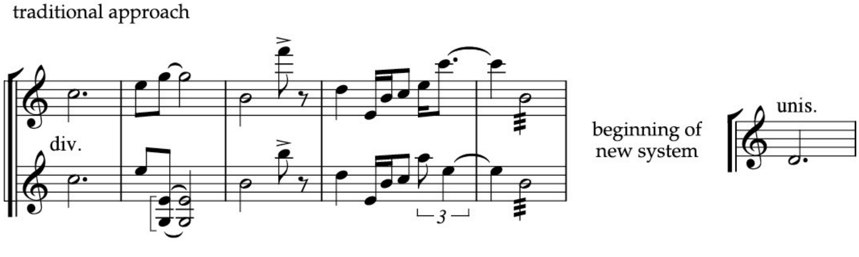
Division on two or more staves

For a part on two or more staves, centre a *divisi* indication in the margin or else just inside the system (see following example). The indication need not be repeated on subsequent systems, unless the division changes.

MOVING BETWEEN DIVISION AND UNISON ON TWO OR MORE STAVES

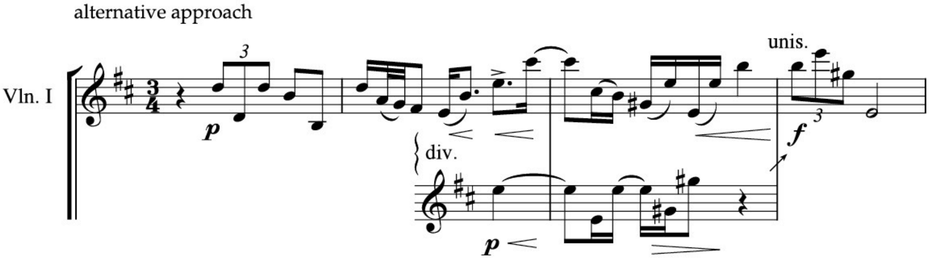
Movement between division and unison can be notated in one of two ways.

The traditional approach is to duplicate any unison notes on all staves. Place a *divisi* indication at the beginning of the first system affected, and *unis.* at the beginning of the system on which the part reverts to one stave, regardless of the actual division and unison points on the system:



Alternatively, place the unison writing on the top stave and use the lower stave(s) only for the divided playing. Where the part divides, centre a bracket and *divisi* indication between the staves, and add a clef (and key signature if used) for the lower stave(s). To indicate a return to unison playing, angle an arrow to the upper stave and label the stave *unis*. Redundant bars on the lower *divisi* stave should be whited out or else left blank, without rests.

This layout is best suited to occasional division, as it provides visual clarity to a score by showing where a part actually divides:



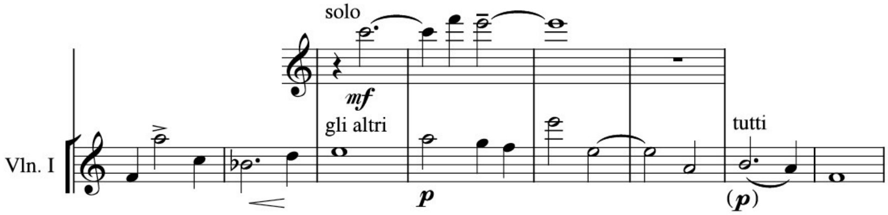
For a string line that alternates back and forth between division and unison on the same system, the traditional approach is more appropriate.

(See also example *Score and part: comparative layout*, p. 585.)

Solo lines

For an extended solo passage, and otherwise when there is room, allocate a separate stave to each solo player at the top of its section. It must be clear where the soloist leaves and rejoins the other players. The traditional layout is to have the solo line's stave present for complete systems, duplicating the music of the rest of the section for bars in which they all play; a *unis*. indication is placed where all parts merge onto a single stave – i.e. after a system break (this layout is the same as the traditional approach to division).

Alternatively, use a solo stave only for the bars in which the solo player deviates from the rest of the section. For the remainder of the system, leave the solo stave without rests, or blanked out. (Use rests for the solo line only when the soloist is actually *tacet*, not when he or she is part of the *tutti* line.) When the soloist rejoins the rest of the section, label the stave *tutti* or *con gli altri* ('with the rest'); for violas (feminine noun), *con le altre*.



A solo line placed on the same stave as other players should always take separate stems.

(See also *Use of 'solo' and 'soli'*, p. 495.)

Reminder dynamics

After divided playing, some players may need a new dynamic. Add this in the score so that it will be included in the relevant instrumental parts when they are extracted (see *tutti* bar in previous example). Brackets indicate that it is not a new dynamic for the line on which it is added.

Playing score

A piece heavily dependent on performance cues may benefit from all players playing from a full score: this is particularly the case with an unconducted piece that is metrically free or that uses proportional spacing (see p. 629). The advantage of seeing the role of each player in its overall context is useful, especially in rehearsal. But this must be weighed against the practicalities of reading from a score that contains so much information. Performers cannot read several simultaneous staves while playing their own parts.

Practicalities

It is practical to play from a score only where there are a very few instruments. This is because there must also be a sufficiently large stave size for each player to read: the stave size should be as close to that of a normal instrumental part as possible. A score will usually require at least two systems per page in order to avoid the problem of impractically frequent page-turns. The more staves to a system, the fewer systems there are on a page, and the less likely it is that there will be suitable places where all players can turn the page in more or less the same bar.

Therefore a playing score is not helpful in every case: the density of information on the page can be distracting since all staves are necessarily the same size, and thus each player's stave does not stand out sufficiently. Furthermore, there is unlikely to be room to provide enough white space around each stave to make an ordinary instrumental part appropriately legible. It is often better to create an instrumental part with a comprehensive cue line instead (see *Cue stave*, p. 575).

Layout

The playing score must be planned around page-turns like an instrumental part.

Each instrument must have an individual stave with its own (not shared) time signatures, dynamics and performance instructions.

Tempo markings must be sufficiently conspicuous for the player whose stave is at the bottom of the system. (Repeat the markings halfway down the score if necessary.)

A transposing instrument must be written at its transposed (i.e. fingered) pitch.

Octave signs should only replace ledger lines where they would do so in a normal instrumental part.

WIND AND BRASS BAND: SCORE LAYOUT AND PART EXTRACTION

Wind band

Transposition and key signatures

Traditionally a wind band score is transposed. However, scores are sometimes notated at concert pitch, since this makes it easier to check them harmonically. The arguments for and against transposition are the same as for an orchestral full score (see *Score transposition*, p. 505).

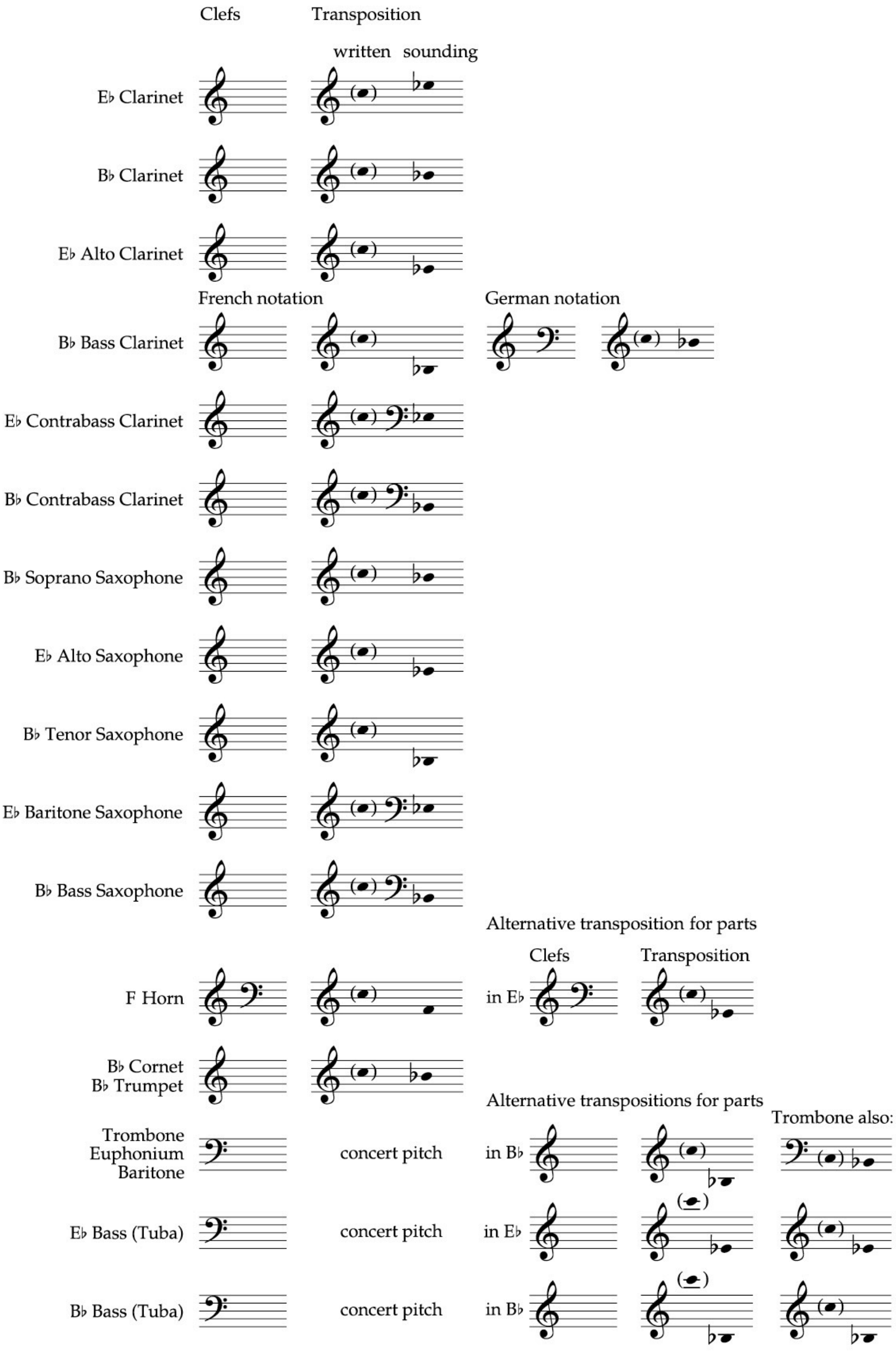
It is also traditional for all brass instruments (including horns, cornets and trumpets) to take key signatures in tonal pieces, in both score and instrumental parts (see *Transposition and key signatures*, p. 251).

(For clefs and transpositions, see Table 7, p. 540.)

Score layout

In a full score, staves for all players appear throughout, although timpani and percussion staves may be deleted when not required. Tempo indications and rehearsal marks appear above the top stave and above the brass. Where a very large number of staves must be used, these markings may be omitted in the middle of the score, to save space.

TABLE 7: WIND BAND clefs and transpositions*


Clefs
Transposition
written
sounding
E♭ Clarinet
B♭ Clarinet
E♭ Alto Clarinet
French notation
German notation
B♭ Bass Clarinet
E♭ Contrabass Clarinet
B♭ Contrabass Clarinet
B♭ Soprano Saxophone
E♭ Alto Saxophone
B♭ Tenor Saxophone
E♭ Baritone Saxophone
B♭ Bass Saxophone
Alternative transposition for parts
Clefs
Transposition
F Horn
in E♭
B♭ Cornet
B♭ Trumpet
Alternative transpositions for parts
Trombone also:
Trombone
Euphonium
Baritone
concert pitch
in B♭
E♭ Bass (Tuba)
concert pitch
in E♭
B♭ Bass (Tuba)
concert pitch
in B♭

* piccolos, flutes, oboes, cor anglais and bassoons: as standard orchestra

Modern practice is to present scores in as close a format to a conventional orchestral score as possible in order to encourage non-specialist conductors into this repertoire.

WOODWIND

As a general rule, clarinets should maintain their symphonic woodwind position, between oboes and bassoons, even though the clarinet section is greatly expanded from that of the symphony orchestra. Saxophones are placed between woodwind and brass (as a group of saxophones would be in a conventional orchestral layout).

BRASS

Traditionally, cornet and trumpet staves appear above the horns, so that the brass section is arranged by pitch, or to give greater prominence to the more soloistic instrument of the brass section – the first cornet or trumpet – whose stave is then at the top of the section. However, the more modern practice is to place horn staves in their orchestral score position, above cornets and trumpets. This has an additional advantage that the often-similar material and sonorities of horn and saxophone appear on adjacent staves.

Place cornet staves above trumpets (cornet sonorities often combine with woodwind and horns). The euphonium or baritone stave appears between trombones and tubas (also called basses).

OTHER INSTRUMENTS

The string bass refers to the double bass, and is so called to distinguish it from both tuba and bass guitar (called electric bass in this context). It is placed below the brass, above percussion.

A timpani part appears on a separate stave, above the percussion staves. Instruments of indefinite pitch may appear on single lines to save vertical space in a score; likewise, two percussion players may share a stave, or pair of lines, to save space (see *Sample wind band score*, p. 542).

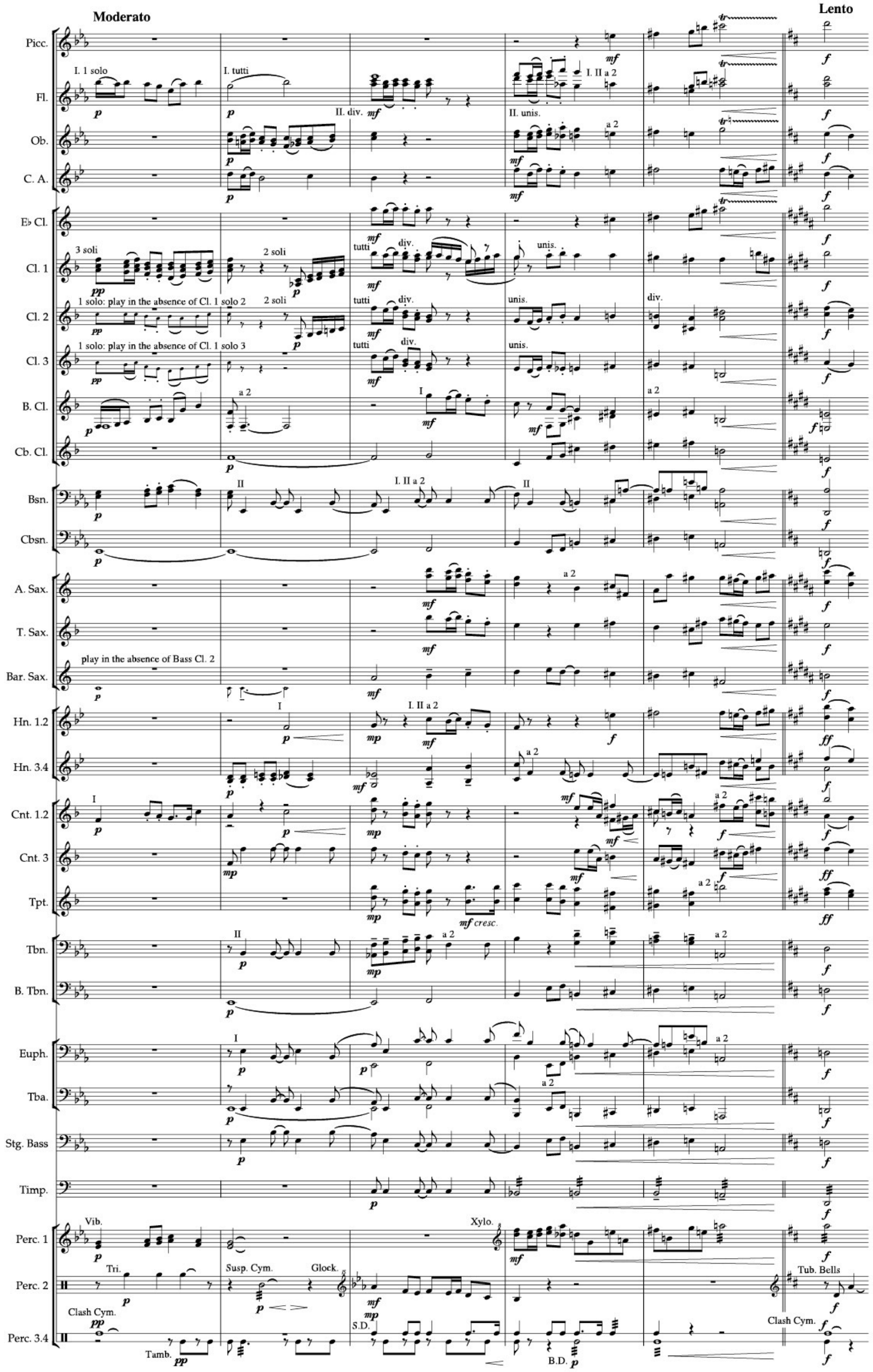
Keyboards, harp and non-standard instruments (such as electric bass and accordion) appear below the string bass, above the timpani and percussion.

Place the stave for a solo instrument at the top of the score.

Margin brackets, barlines and labels

To help to identify an instrument amongst a large number of staves, it is recommended that each instrumental family takes separate margin brackets and barlines. Within the woodwind this makes the position of the much-expanded clarinet section easier to identify. The only exception is flutes and oboes, which may have joined brackets and barlines if preferred.

Sample wind band score (transposed score)


Moderato
Lento
Picc.
Fl.
Ob.
C. A.
E♭ Cl.
Cl. 1
Cl. 2
Cl. 3
B. Cl.
Cb. Cl.
Bsn.
Cbsn.
A. Sax.
T. Sax.
Bar. Sax.
Hn. 1.2
Hn. 3.4
Cnt. 1.2
Cnt. 3
Tpt.
Tbn.
B. Tbn.
Euph.
Tba.
Stg. Bass
Timp.
Perc. 1
Perc. 2
Perc. 3.4
I. 1 solo
I. tutti
II. div.
I. II a 2
II. unis.
a 2
3 soli
2 soli
tutti
div.
unis.
1 solo: play in the absence of Cl. 1 solo 2
1 solo: play in the absence of Cl. 1 solo 3
play in the absence of Bass Cl. 2
I
II
Vib.
Xylo.
Tri.
Susp. Cym.
Glock.
Tub. Bells
Clash Cym.
Tamb.
S.D.
B.D.
mf cresc.

In the brass section, brackets and barlines may join the staves of cornets and trumpets, and the staves of euphoniums and tubas, as groups with joined staves are easier to identify than many singly barred staves.

MARGIN LABELLING

To aid immediate identification, it is a convention to label each instrument beside its stave (rather than to share labels between adjacent staves as is often appropriate in an orchestral score). See *Sample wind band score*, opposite.

Stave sharing

Two lines of a divided part or two named parts of the same instrument (1st and 2nd or 2nd and 3rd) may share a stave in the score where convenient. The voicing of parts may dictate which players share a stave (e.g. cornets and trumpets are often voiced so that the 2nd player plays low, and 3rd player plays the middle part, in which case the 3rd player would be more conveniently written on a separate stave). Assign separate staves for parts that carry prominent material: for each of the three B♭ clarinet parts and, if required, for the two alto saxophone parts and 1st cornet part.

Labelling transposing instruments

It is recommended that, after the first page of music, abbreviations on subsequent pages use as short a form as possible, in order to minimize the width of the margin.

TABLE 8: Abbreviations for wind band instruments*

STANDARD LABELS FOR PAGE 1	ABBREVIATIONS	
E♭ Clarinet	E♭ Cl.	*or* Clt.
Clarinets 1/2/3**	Cl. 1/2/3	
E♭ Alto Clarinet	Alto Cl.***	
B♭ Bass Clarinet	B. Cl.	
E♭/B♭ Contrabass Clarinet	Cb. Cl.	
B♭ Soprano Saxophone	Sop. Sax./S. Sax.	
E♭ Alto Saxophone	Alto Sax./A. Sax.	
B♭ Tenor Saxophone	Tenor Sax./T. Sax.	
E♭ Baritone Saxophone	Bar. Sax.	(NB: not B. Sax)
B♭ Bass Saxophone	Bass Sax.	
Horns in F/E♭	Hn.	
B♭ Cornets	Cnt./Crt.	
B♭ Trumpets	Tpt./Trpt.	

* other abbreviations as for standard orchestra (see Table 3, p. 511)

** B♭ is assumed

*** the abbreviation A. Cl. (for alto clarinet) should not be used, to avoid confusion with clarinets in A

Labelling a multiple-player part

Multiple players play the flute and clarinet parts; extra players may double cornet, trombone, euphonium, baritone and tuba parts and sometimes other lines as well. All players play these multiple-player parts unless otherwise indicated.

SOLOS AND TUTTI

Where there is a divided part on one stave, it is important to differentiate the number of the part (1st/2nd/3rd players) from the number of individual players designated to that line. Some scores define the instrumental part in numerals, and spell the number of players in words: e.g. *1. (one only)*. However, for the sake of brevity, label each instrumental part with a roman numeral (this applies also to lines that normally have single players), and the player number with an arabic numeral:

Example	Label
1st part, 1 solo player then all 1st players	*I. 1 solo* then *I. tutti* or *I. (one only)* then *I. (all)*
2nd part, two players then all 2nd players	*II. (2 soli)* then *II. tutti* or *II. (two only)* then *II. (all)*

An instruction for a solo player to play in a soloistic manner may be indicated *in rilievo* (see *Use of 'solo' and 'soli'*, p. 495).

DIVISION AND UNISON

Where a 1st, 2nd or 3rd part divides, this is indicated *div.* and cancelled by *unis*.

Two parts (e.g. I and II) playing in unison are labelled *a 2*, three parts together (i.e. I, II and III) as *a 3*, even though there may be multiple players in each division. It is not necessary to use *divisi* for a stave that subsequently shows the two separate parts.

Example	Label
1st part, divided then unison	*I. div.* then *I. unis.*
2nd part alone, then 1st and 2nd players in unison	*II.* then *I.II. a 2*

(See also *Sample wind band score*, p. 542, flute and clarinet staves.)

Playing cues

In both score and parts, solo material written for more unusual instruments that might not be available to a standard band (such as cor anglais or contrabassoon) should be cued into other parts where possible (see 2nd bass clarinet cue in baritone saxophone part, *Sample wind band score*, p. 542). Where the number of players specified in the score may be unavailable, cue the material into other parts; e.g. for a passage of three players of the 1st clarinet part, cue the material into the parts of the first players of 2nd and 3rd clarinets (see bar 1 in *Sample wind band score*, p. 542; see also *Playing cues*, p. 498).

Instrumental parts

Each named instrumental part (as listed in the *Sample wind band score*) has a separate printed copy; i.e. as in normal orchestral practice there should be a 1st flute part and a 2nd flute part and three or more different B♭ clarinet parts. All divisions of each part (e.g. all notes for the 1st clarinet part) appear on the one copy. The notes of two or even three divisions may be placed on one stave, if appropriate, otherwise on two or more separate staves (see *Multiple-player parts*, p. 582).

BRASS TRANSPOSITIONS

It is customary to offer alternative transpositions for the parts of most brass instruments (two alternatives in the case of the lower-pitched instruments). These transposition options cater for players from the brass band world who require the same transpositions for their brass instruments as are found in the brass band repertoire – see Table 7, p. 540.

Brass band

Score layout

Brass band standard instrumentation is twenty-five brass players and usually three percussion (twenty-eight players in total). This number reflects the Brass Band Contest rules in the United Kingdom. Player distribution is as follows:

E♭ Soprano Cornet	1 player	1st B♭ Baritone	1 player
Solo B♭ Cornets	4 players	2nd B♭ Baritone	1 player
Repiano (or 1st) B♭ Cornet	1 player	1st B♭ Trombone	1 player
2nd B♭ Cornets	2 players	2nd B♭ Trombone	1 player
3rd B♭ Cornets	2 players	Bass Trombone	1 player
Flugel Horn in B♭	1 player	B♭ Euphoniums	2 players
Solo E♭ Horn	1 player	E♭ Basses	2 players
1st E♭ Horn	1 player	B♭ Basses	2 players
2nd E♭ Horn	1 player		

Many European bands play with larger numbers but without additional parts.

Brass band scores are, traditionally, landscape format. This layout accommodates one system per page but can look vertically cramped for all but the simplest scores. Portrait format is appropriate for a more complex piece, as it affords greater vertical space between staves.

Each named part (as given in the first column of Table 9, opposite) has an individual stave that should appear throughout the score. It is customary to allocate an instrument label to each stave throughout (and not to share labels between staves as would be the case in an orchestral score). The score order of instruments is standard. Tempo indications appear once, above the top stave.

Where a part taken by two players divides, place both lines on the same stave unless they are too intricate to read easily. When each solo B♭ cornet part has an individual line, allocate two players to each of two staves (the upper two players appear on the upper stave). In the sample score (opposite), such a complicated layout is acceptable on a single stave only if it is an isolated case.

Generally, the layout for percussion is one timpani player plus two percussion, although sometimes timpani appear within the 1st percussion part (playing other percussion as well) and the other parts are then numbered 2 and 3 respectively. Each player should have a separate stave or line. Timpani and percussion staves are barred together to emphasise their separation from the brass (see Table 9, *Sample score layout*, opposite).

Clefs, transposition and key signatures

Transposed scores are always used in brass band music; conductors are often players themselves.

All instruments, including horns, cornets and trumpets, take key signatures in both the score and instrumental parts.

All brass instruments are written in the treble clef, except the bass trombone, which appears in the bass clef and is the only brass instrument written at sounding pitch.

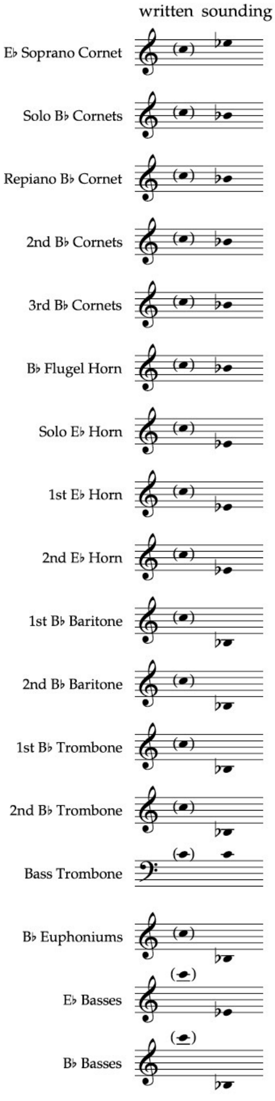
The clefs and transpositions of all the brass instruments (apart from bass trombone) enable the player to change more readily between instruments: the fingerings and clef are common to all instruments. This is a legacy from the brass band's early industrial past; nowadays, it is less likely that players will swap between instrument.

Tuned percussion: It may be useful to dispense with key signatures for tuned percussion since brass band music is often written in 'flat' keys: thus an

TABLE 9: BRASS BAND transpositions and layout

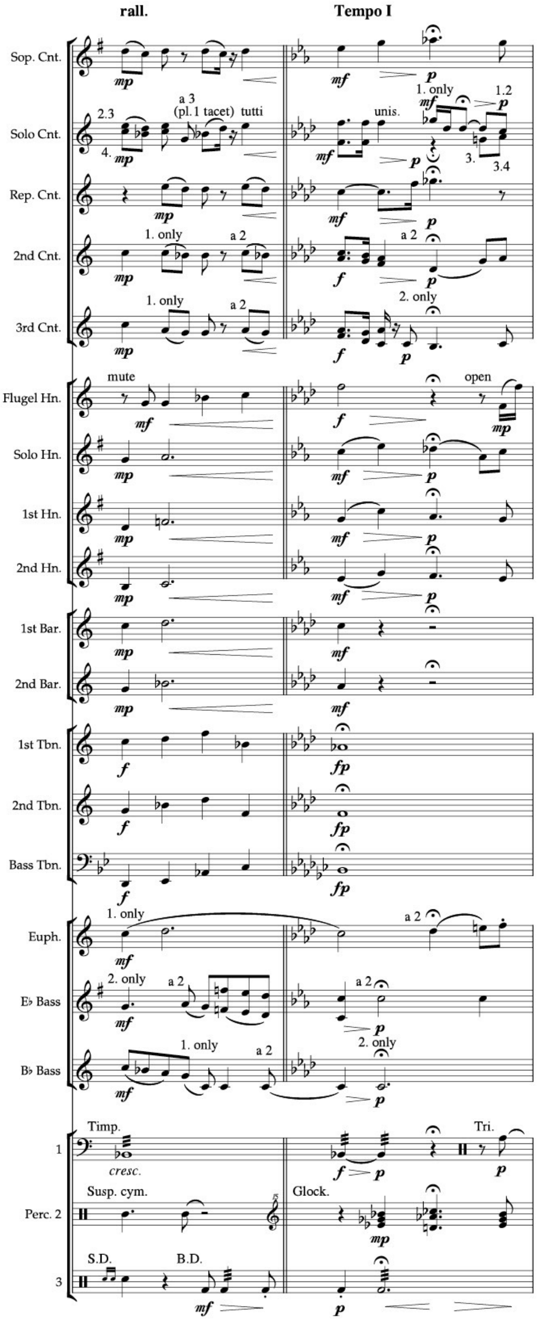
Transpositions

Instrument labels
for opening page


written sounding
E♭ Soprano Cornet
Solo B♭ Cornets
Repiano B♭ Cornet
2nd B♭ Cornets
3rd B♭ Cornets
B♭ Flugel Horn
Solo E♭ Horn
1st E♭ Horn
2nd E♭ Horn
1st B♭ Baritone
2nd B♭ Baritone
1st B♭ Trombone
2nd B♭ Trombone
Bass Trombone
B♭ Euphoniums
E♭ Basses
B♭ Basses

Sample score layout (transposed score)

Instrument labels
for subsequent pages


rall.
Tempo I
Sop. Cnt.
Solo Cnt.
Rep. Cnt.
2nd Cnt.
3rd Cnt.
Flugel Hn.
Solo Hn.
1st Hn.
2nd Hn.
1st Bar.
2nd Bar.
1st Tbn.
2nd Tbn.
Bass Tbn.
Euph.
E♭ Bass
B♭ Bass
1
Perc. 2
3
2.3
4.
a 3
(pl. 1 tacet)
tutti
unis.
1. only
1.2
3.
3.4
a 2
2. only
mute
open
Timp.
cresc.
Tri.
Susp. cym.
Glock.
S.D.
B.D.
mp
mf
f
p
fp

instrument in C may require a key signature with many accidentals (see Table 9, *Sample score layout*, p. 547, glockenspiel part). In addition or alternatively, consider spelling the pitches of a tuned percussion instrument enharmonically, so that the player can avoid a key signature that might be difficult to remember while changing instruments or moving from a percussion clef (see *Key signatures in non-tonal or polytonal music*, p. 93).

Player labelling

Player labelling and mute instructions that are normally given in Italian in a conventional orchestral score are often given in English (see below).

SOLO CORNET LINE

All four players play the solo B♭ cornet line unless otherwise indicated by the following specifications. For other allocations, specify actual players, e.g. *1 & 2* and *2. only* (i.e. 2nd player). It is also acceptable to use *a 2* and *a 3*: this allocates the line to the first two or three players unless otherwise indicated (such labelling is compact in cramped conditions). The labels 'Two' and 'Three' (meaning two and three players) are an obsolete style and best avoided. A line is marked *tutti* or *all* after a passage for fewer than all four players.

OTHER SHARED PARTS

For all other parts that are doubled by two players, an indication of one player is marked *1. only* (or *2. only*). Two players joining to a unison after either a division or one player playing alone is marked *a 2* or *both* (see Table 9, *Sample score layout*, p. 547).

Instrumental parts

Each named instrumental part (as given in the player list on p. 545) has a separate copy. Thus it is usual to have one copy only for the four solo cornet players even though, at times, the part may divide into four lines. If the divided music is too complex to allow for two parts on each of two staves, and thus each player needs an individual stave, then assign a separate copy for players 1 and 2, and for players 3 and 4 (see *Multiple-player parts*, p. 582).

ORCHESTRAL REDUCTION

An orchestral reduction is the condensing of instrumental lines into a keyboard part. It is often referred to as the piano score or rehearsal score. It functions as a rehearsal tool and may also be a valid performance alternative. All instrument-accompanied vocal music requires a reduction so that soloists and choral singers may learn the music with a rehearsal pianist. (Unaccompanied choral works require a choral reduction: see p. 471.) An orchestral reduction may be required for a work with soloists and orchestra or for a theatre work that is to be choreographed.

Creating an orchestral reduction almost always involves compromise: it is rarely possible to present the complete contents of an orchestral score. The aim is to create a part that is playable by a rehearsal pianist, often at sight. Bear in mind that the pianist may be simultaneously rehearsing a soloist, co-ordinating a group of musicians or following a conductor.

The reduction needs to present the work as fully as possible on two staves, and to contain all significant material (cue staves may be added for extra material). It should not be so densely packed that it is too hard to play or for the performer to pick out a cue. Conversely, an over-simplified rendition will confuse performers when they come to rehearse with an orchestra or ensemble and what they hear bears little resemblance to the reduction.

Layout

The reduction should be notated as a proper keyboard part. The same points apply for selecting and notating material as for a choral reduction (see *Notating the reduction*, p. 473).

Cue staves

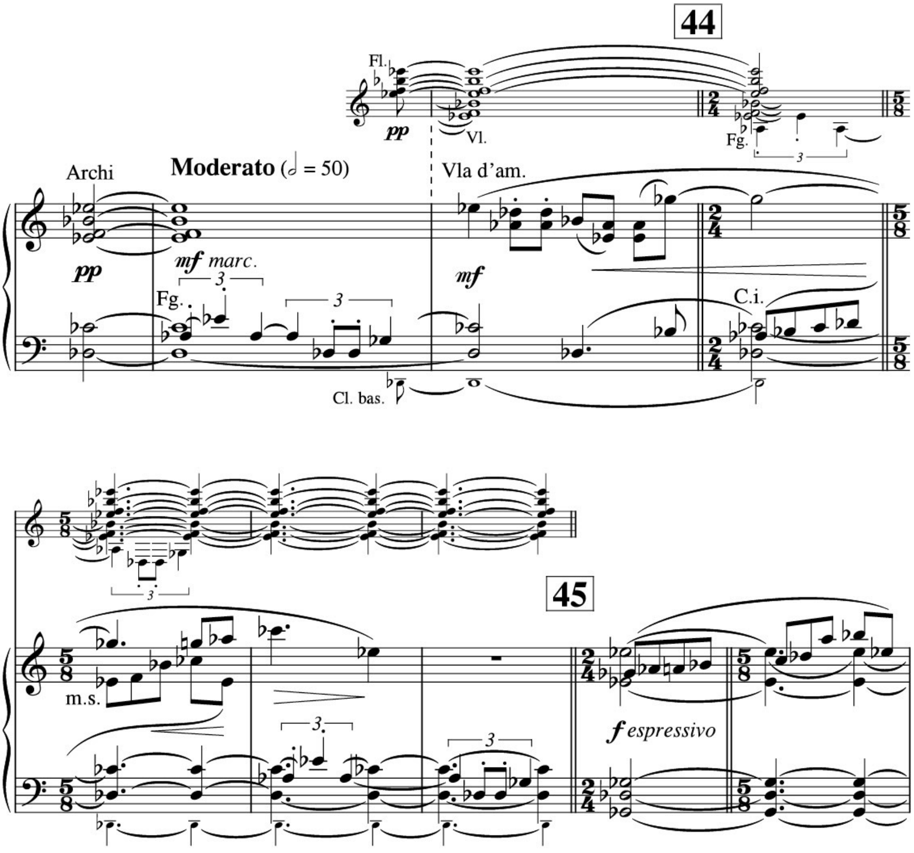
One or more cue staves may be added as necessary for extra material. Usually all cue staves appear above the piano part, although bass-range material may go below the part. If the range of the material is between that of the left and right hand, the cue stave may be placed in the middle of the system, although it is usually clearer to place it above the right-hand stave.

A cue stave is only required for the bars that contain cue material, so it may start and finish mid-system. Some editions join each cue bar to the piano part with dotted barlines but this is only really necessary for cue bars that start mid-system, since these would otherwise appear to be detached from the system (for styling, see *Practical alternatives to technical difficulties*, p. 497; see also example *Cueing instruments of indefinite pitch*, p. 553).

Cue staves are not included in the margin piano brace.

A cue stave is designed to be read but not played; therefore it may contain as much material as is required. When the piano part becomes complex, transfer some material to a cue stave. Where there is room, cue notes, which are not necessarily playable in addition to the reduction, may be added to the piano staves to save space:

Janáček: *The Makropulos Case*


44
Fl.
pp
Vl.
Fg.
3
Archi
Moderato (𝅗𝅥 = 50)
Vla d'am.
pp
mf marc.
3
Fg.
3
mf
C.i.
Cl. bas.
3
45
m.s.
3
3
f espressivo

Complex passages may be notated as a two-piano score, with all four staves at full size, so that a rehearsal pianist can alternate the accompaniment. Alternatively, two staves may be braced as a cue-sized piano part and placed above the full-sized one.

OFF-STAGE INSTRUMENTS

Music for players seated apart from the orchestra – either on- or off-stage – is separated onto one or more cue staves above the piano part. If there is not room for a separate stave, differentiate the material with cue notes on the piano staves.

Material to include

When selecting material from a complex texture, include elements of which the performer must be aware:

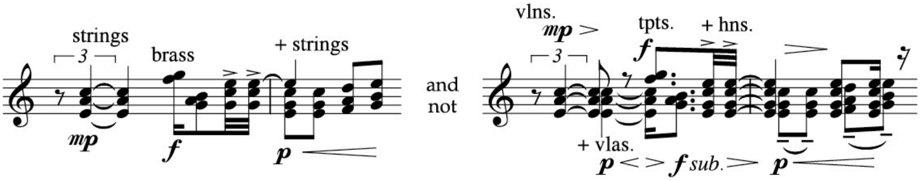
- aurally dominant material
- an instrument establishing a new tempo or introducing new material
- a rhythm or pitch that is taken up by the performer
- melodic or rhythmic material in counterpoint with the performer
- verbal indication of material in unison with the performer, e.g. *violini colla voce* ('violins with the voice')

Thinning out dense textures

Reduce octave doublings, so that the pianist is not presented with fistfuls of notes. Additional octaves may be indicated verbally, e.g. *woodwind col 8va*.

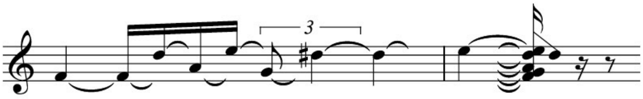
In fast chordal passage-work, notate only selected parts (e.g. the top and bottom lines) or the top plus one or two other parts. Note that once a harmony is established, it is most useful to select pitches that are additional to that harmony (bar 2, below).

Simplify dovetailing parts. Moving parts are more important as cues than the duration of sustained parts and it is helpful not to fill the score with too much detail:



Keep dynamics, articulation and phrasing to a minimum, so as not to clutter the reduction. Omit tonguing indications and bowing slurs, and transfer only orchestral articulation that is meaningful to piano playing.

A sustained passage of staggered entries may be notated as a single line to avoid the complicated notation of many held notes. Replace each sustained value with an open tie before the entry of the next instrument. If required, a final chord comprising all the tied pitches may show the release point:



(See also *Open ties*, p. 72.)

WIDE STRETCHES

Pitches that are likely to be beyond the pianist's reach should be notated as cue-sized notes.

Where occasional chords require stretches that are beyond a pianist's reach, notate the chords either with an arpeggio sign or give lowest notes as grace notes before the rest of the chord. For passages with wide intervals, transpose extremes of a chord up or down the octave; to prevent these altering important intervallic relationships in the chord, transpose other notes in the chord as well, if necessary.

Indicating instrumentation

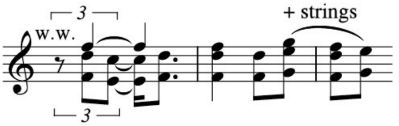
It is extremely helpful to indicate instrumentation. When all the material cannot be included in the reduction, the performer must know which instrument the cue is to be taken from. Where singers must find their pitches from the orchestra, it is essential to provide instrumentation details. Indicate labels in a language that will be understood by those using the score (the examples in this section use English except for the Janáček excerpt, which retains its original Italian).

Unless the performer has to take a cue from a particular instrument, a general indication of instrumentation (*w.w./brass/perc./strings/tutti*) is sufficient. Abbreviate individual instrument names. A line played by more than one instrument is labelled in orchestral order: e.g. *fl., tpt., vla.* (see second example, *Cueing instruments of indefinite pitch*, opposite). If it is essential to specify the voicing of a chord, stack instrument labels in correct pitch order (see first example, *Notating instruments of indefinite pitch*, opposite).

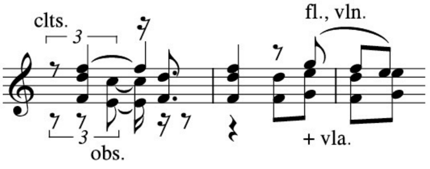
The addition of an instrument to an existing line is marked with a '+' sign.

Place instrument labels above an entry or, in double-stemmed writing, next to each stem. A label relevant to both staves is placed mid-system.

Entries from alternate groups of instruments may be indicated with separate stem directions. However, this level of orchestral detail is usually not necessary, and it can make the reduction needlessly difficult to read:



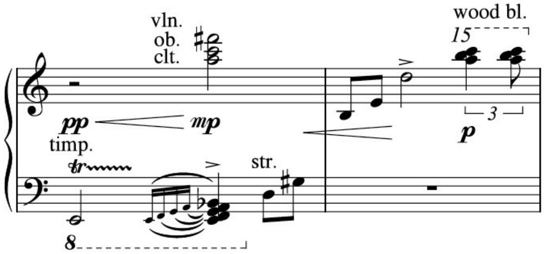
rather
than



Instruments of indefinite pitch

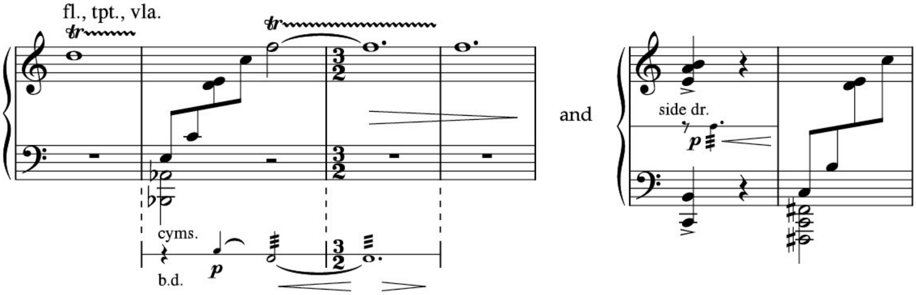
To represent such sounds in the reduction, notate a cluster at the top or bottom of the piano system, according to the nature of the intended sound:

Notating instruments of indefinite pitch



When the sound is to be indicated but not played, notate cue-size rhythms on a line placed outside the system, or between the staves if space is limited:

Cueing instruments of indefinite pitch



Enharmonic spelling

It is helpful for the pianist reading at sight to see chords and figuration in familiar harmonic patterns. Spell chords according to tonal harmonic principles where possible, regardless of the note spelling of individual instrumental lines in the full score.

In a vocal score, when a line is to be read as a cue, spell its pitches as the most familiar melodic intervals: this helps the singer to hear the cue most easily. Where possible, spell harmonies before or during a vocal entry in such a way that singers can most easily relate their lines to the harmonies. For example, in a highly chromatic idiom, use either predominantly sharp- or predominantly flat-based spelling: an accompaniment in 'sharp' notes is unhelpful with a vocal line based around, say, a key of D♭ (see *Note-spelling*, p. 85).

18

Part Preparation

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Preparation

Players will tend to be well disposed towards a work whose instrumental parts are carefully prepared. The size and spacing of the notation, the placing of staves on the page and the timing of page-turns all contribute to the success or failure of a performance. However brilliant a piece is, arguably performers can do justice to it only if it is easily legible, leaving them free to concentrate on delivering the performance.

Performance conditions

It is very important to choose a stave size that the player is able to read comfortably. Consider the likely performance conditions before deciding on appropriate page and stave sizes.

- If the performer is likely to be some distance from the stand or if two players share a copy, the stave size should be larger than otherwise (e.g. 7 mm)
- In bad lighting conditions, e.g. in an orchestra pit, small notation is difficult to read
- In cramped conditions, avoid large pages for performers who must sit close together (e.g. woodwind players)
- Do not give an enormous (A3 or larger) or flimsy copy to a performer who will need to transfer it from one stand to another (e.g. a percussionist, or a pianist doubling celesta)

An ideal stave size in good lighting conditions is 6.7 mm (see *Stave sizes*, p. 482).

PAGE SIZE

Instrumental parts benefit from a slightly larger page size than A4 (see *Page sizes and formats*, p. 481).

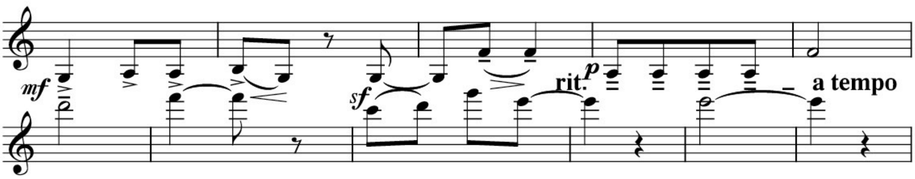
In order to use an ample stave size to satisfy criteria of legibility, especially at a distance, it may be preferable to have a generous page size. However, if considering a page larger than B4, take into account the following:

- A large copy must fit onto a performer's stand
- The copy should not obliterate the performer's view of everyone else
- The copy must be easily legible from one edge of the double page to the other. For instance, a pianist whose instrument has a high music rest may struggle to read the top of an A3 portrait-format page. Two string players at a desk will have difficulty reading the furthest side of an A3-sized copy

Spacing staves

Allow plenty of space between systems on a page whenever possible, so that it is immediately clear which notation belongs to which stave. It is essential that there is adequate space to allow players to write cues, beats, fingerings, bowings, etc., above each stave of their copies. The following cramped spacing creates unnecessary difficulties and ambiguities, and would be impossible to use:

not acceptable



(See also *Distance between staves*, and *Spacing a braced part*, p. 488.)

Titles

List movements in all material even if some performers may not be included in one or more movements, so that the musician knows none of the part is missing (see *Tacet*, p. 580; also, *Matching information for all materials*, p. 501).

An instrumental part need not have a title page as long as all essential information can be fitted on the first music page (see also *Title page*, p. 501). Each part should contain a copyright line (see *Information on the first page of music*, p. 504).

Labelling the part

On the first page of music, place the instrument name above or below the title, flush with the left-hand edge of the printed area (see oboe example, opposite). List all doubling instruments and any others the player needs. A part that requires more than one player should state this: e.g. 'Piano (2 players)'.

A percussion part must list all instruments needed, together with the number of players required to play them (see *Listing instruments and specifications*, p. 272).

For subsequent pages it is good policy to label the top centre of each page with instrument name and player number, in case pages become separated later (this is known as a 'running head'). For a part with instrumental doubling, it is necessary to give only the principal instrument for the running head (see also *Running heads*, p. 501).

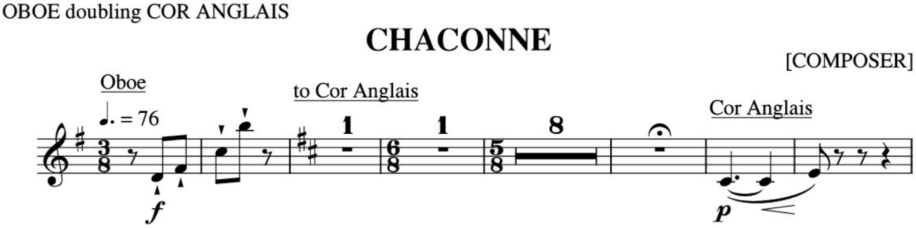
Labelling instrument changes

A part that has instrumental doubling should label the instrument that plays the first entry.

Instrument changes are indicated 'take . . .' or 'change to . . .' or simply 'to . . .' (Italian: *muta in* . . .). When a player (such as a percussionist or a pianist doubling on celesta) needs to move to a new instrument, 'to . . .' is a more appropriate instruction.

To allow a player the greatest possible time to change instruments, place the instruction as far in advance of the entry as possible, i.e. at the first available rest. Where the space on the page between the instruction and the actual entry is significant (i.e. there are many rest bars), confirm the instrument above its entry.

A change of instrument must stand out clearly from other text. Use underlining, capitals or boxed instructions (this is especially important in a hand-copied part):



(For percussion, see *Labelling instrument and stick changes*, p. 275.)

Page-turns

The timing of page-turns is one of the most important aspects of organizing an instrumental part. Plan page-turns around the longest available rests. To facilitate this, it is acceptable for a large proportion or even a whole page to remain blank, if necessary (see *Stave levels between facing pages*, p. 487).

Any long sections without rests must be arranged across a double-page spread, and the remainder of the part organized around this.

A part may start either on a right-hand or a left-hand page, according to whichever arrangement will subsequently result in the fewest or most leisurely page-turns (see *Pagination*, p. 483).

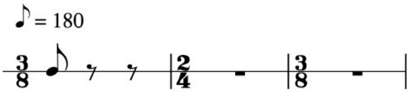
Feasible page-turns

Calculate the time available for turning a page by converting the duration of the available rests into seconds. A player who needs four seconds to turn a page requires the following number of beats at the given metronome markings:

Number of beats needed for 4-second page-turn

4 seconds is
4 ♩ of ♩ = 60
6 ♪ of ♪ = 90
8 𝅗𝅥 of 𝅗𝅥 = 120
12 ♩. of ♩. = 180

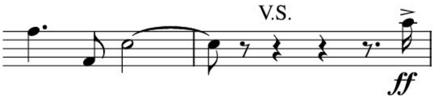
Beware of rests in a fast tempo that look more impressive in length than they actually are:



The above is only three seconds – just enough time for some wind players to turn, but a double bass player would need at least five seconds.

Fast page-turns

V.S. (Italian: *volti subito*, 'turn quickly') warns the player of a necessary fast turn. Place this instruction at the end of the right-hand page. If the turn must take place during a rest in the middle of the last bar, complete the notation of the bar before the turn, adding *V.S.* over the rest:



(Sometimes it is helpful to repeat the bar – or the section of the bar to be played after the turn – on the following page. Clarify that the bar is stated twice by adding a verbal instruction 'repetition of bar . . .' after the turn; additionally, square brackets enclosing the restated material are a helpful visual reminder.)

Use *V.S.* only when it is essential to turn quickly, since to use it for every turn lessens its impact.

Page-turns at rest bars

When there is a single bar of rest (or one multiple-rest bar), indicate this before the turn, so that the player can see the time available to turn. When there are several bars of written-out rests for different time signatures, or multiple-rest bars divided for rehearsal marks, it is more helpful to arrange the majority of rests after the page-turn: players will turn as soon as they have finished playing, to prepare for the next entry.

(For *Multiple rests*, see p. 564.)

Where to avoid page-turns

Avoid a page-turn during a short rest if a longer rest is available in which to turn. A very fast page-turn can draw unwanted attention to itself.

A page-turn is impractical during a short rest that coincides with a change of instrument, a muting instruction, pedal changes in a harp part, a dramatic silence (e.g. a G.P. bar), or a very quiet passage (fast pages-turns cannot avoid being noisy).

During a short repeat a page-turn is feasible only if there are sufficient rests at the beginning or end of the section to allow for the turn-back.

Avoid a page-turn for many players at once during a quiet passage. A whole string section turning simultaneously will create massive disruption.

In a string section, even though players sit two-to-a-desk and play from one copy, the inside player should not be expected to turn when there are notes to be played, unless absolutely necessary (see below). If this is unavoidable, it is best if all the strings do not turn in the same place so that there is not a sudden thinning of sound while half the string body turns together.

Even without a turn, avoid a break onto a right-hand page during a short but complex solo that could otherwise fit onto a single system.

In keyboard music, where possible avoid a page-turn in the middle of a complex passage. If the music requires a page-turner, it can be hard for him or her to judge where to turn: an awkward turn may compromise the quality of the passage that follows.

Passages with no available page-turns

In a string section the inside player turns so that the outside player can continue playing.

A player may be able to play certain pitches while turning with one hand (e.g. for open strings, and for some woodwind and brass fingerings).

In exceptional circumstances one player can turn for a neighbouring player. Place this instruction in both players' copies. If the manoeuvre involves one player needing to stand up, bear in mind that this is distracting for an audience if it occurs other than in the percussion section.

So as to fit all continuous music onto a double-page spread, consider either slightly reducing the stave size either for a single double-page spread or for the entire part, or enlarging the part if appropriate (see *Page sizes and formats*, p. 481).

FOLD-OUT (FLAP)

Where there is extended continuous playing, an extra page may become a fold-out to form a three-page spread. This is feasible only when the player(s) can read the distance across three pages; it is therefore not recommended with A3-sized pages, nor for two players sharing a stand. Furthermore, a three-page spread should be used only where there is room on the stage or in the pit for the extra width of the copy.

A fold-out is most convenient as a first or last page, since it can be folded out in advance. A fold-out in the middle of a copy requires extra time to arrange.

Page-number the fold-out as an adjunct to the page to which it is joined (e.g. '4a' for a left-hand fold-out or '5a' for a right-hand fold-out). Use a left-hand fold-out at the beginning of the copy (which will be labelled page 2a), a right-hand one for a final page.

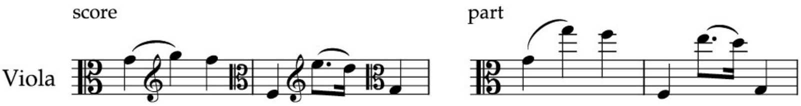
A four-page spread is a possibility in chamber or solo pieces, where there will be room on stage for two or more music stands per player. A fold-out page is attached to both the left-hand and the right-hand page.

Clefs, octave signs and time signatures

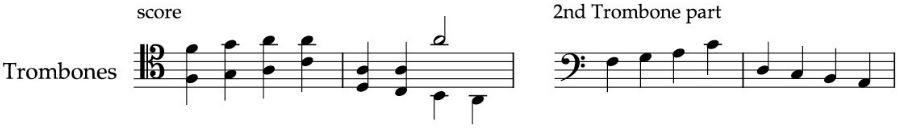
Clefs

A clef that has been chosen in a score for the convenience of saving vertical space may not be the most appropriate choice for an instrumental part.

A score may use frequent clef changes to avoid ledger lines. An instrumental part is better written with occasional ledger lines, rather than with frequent clef changes:



When two lines on one stave in a score are to be separated onto individual parts, it may be more suitable to place the lower line in a lower-pitched clef:



Where a score in C has made free use of treble and bass clefs for transposing instruments (e.g. for clarinets), the transposed part should retain the treble clef throughout (this applies to all transposing instruments except horn).

Octave-transposing clefs (𝄠 𝄤 𝄟 𝄣) are usually redundant in instrumental parts since this conventional transposition is assumed. A statement at the front of the part can confirm this if necessary (but see also *Tuned percussion: Octave transpositions*, p. 276). The alternation of octave-transposing and ordinary clefs tends to clutter a doubling part and is best reserved for a full score (see *Octave-transposing clefs*, p. 506).

Octave signs

Avoid octave signs for orchestral instruments, except to write notes of five or more ledger lines (see *Using ledger lines or octave signs*, p. 32, and *Woodwind: Octave transpositions to replace ledger lines*, p. 255).

Time signatures

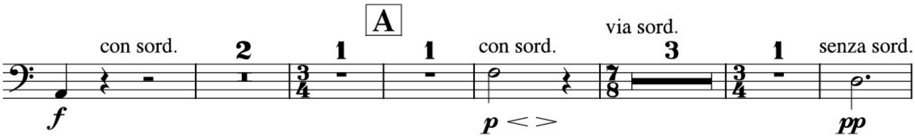
In an instrumental part or playing score, the best position for a time signature is on the stave, so that a performer following his or her line has an individual time signature. Time signatures placed above or below the stave are unhelpful, as the player's eye must leave the stave to take in the time change.

(See also *Time signatures: Size and placing*, p. 152.)

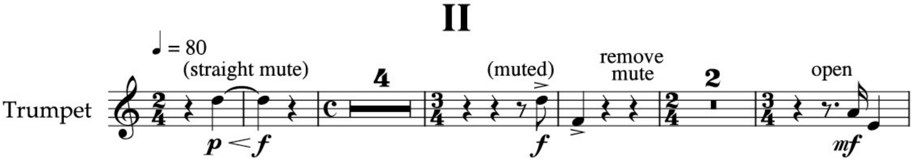
Mute instructions

Mutes are usually indicated in Italian. Specific trumpet and trombone mutes tend to have English names, and so all mute instructions for brass may be in either language.

An instruction to mute (*con sord.*) or to play without mute (*senza sord.*) appears above the first relevant note (see *Technical instructions*, p. 492). Where many rest bars precede a mute instruction, it is a helpful convention, particularly in brass parts, to add *con sord.* or *with mute* and *via sord.* or *remove mute* at the first available rest. This advance warning helps to prevent such manoeuvres from being overlooked. The convention may also be transferred to string parts.


A
con sord.
2
1
1
con sord.
via sord.
3
1
senza sord.
f
p
pp

Confirm the continued use of a mute after a period of rests and at the beginning of a subsequent movement. Bracket an instruction that is used for purely confirmation purposes, to show that it is not a new instruction:


II
♩ = 80
(straight mute)
4
(muted)
remove mute
2
open
Trumpet
p
f
f
mf

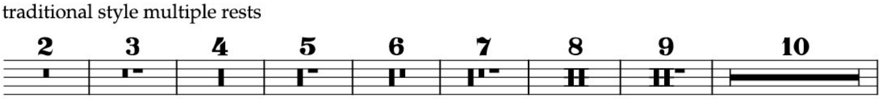
(For brass, see also *Mutes*, p. 263; for strings, see *Mutes*, p. 426.)

Multiple rests

A succession of single-bar rests, as appears in a score, is amalgamated into multiple-rest bars in an instrumental part.

The numeral indicating the number of bars' rest should appear in bold type; traditionally a time-signature numeral is used. Usually a multiple-rest bar comprises an extended beam centred on the middle stave-line, with a vertical notch to the adjacent stave-lines at each end. This style of multiple-rest bar may be used for any number of bars: it is simplest to read and it is also best suited to parts on single stave-lines (e.g. percussion).

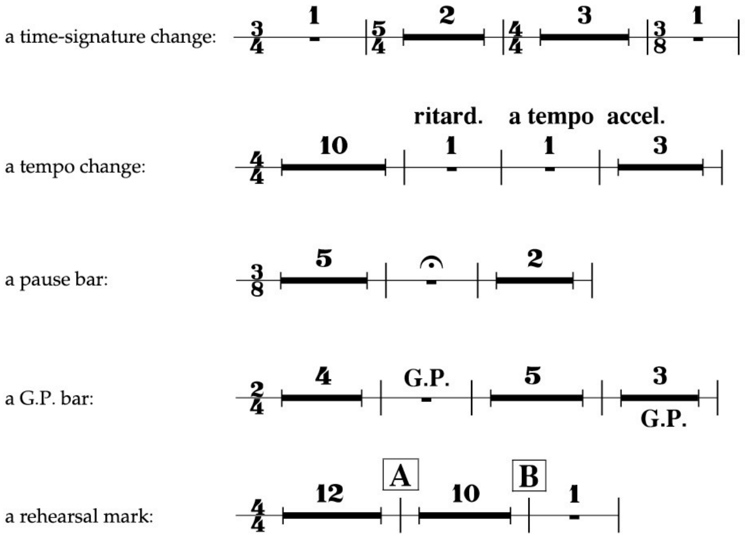
It is also acceptable to use the traditional style of rests. The width of the rest symbol is half the width of the semibreve rest. Use a centred beam for more than nine bars' rest:


traditional style multiple rests
2
3
4
5
6
7
8
9
10

Many editions use the two-bar rest (as in the previous example) and the all-purpose multiple-rest symbol for all rests greater than two bars (see trumpet example, opposite).

Place the numeral indicating the number of bars' rest above the stave, except where a shortage of vertical space (e.g. coinciding with a tempo change) makes it more convenient to place the numeral below the stave. Multiple-rest bars should be divided in the following circumstances:

TABLE 1: Dividing multiple rests



According to available space, multiple-rest bars may be of any convenient length on a given stave. It is helpful visually for successive bars to be relatively longer or shorter according to their duration. However, when spacing is tight, consecutive bars may be of equal length, regardless of the number of bars they represent. (In traditional engraving, a rest bar takes the space the graphic symbol needs: thus, multiple-rest bar symbols measuring equal graphic length take equal space. This layout is not recommended.)

Relative spacing is also helpful for reading single-bar rests of different time signatures (see oboe example, p. 559).

A single bar's rest is best numbered as '1', so that it is not misread for a multiple rest. Omit the '1' when a pause is present, and when a cue is added. The '1' may be omitted wherever a single bar has a *G.P.* indication (see *Silent bars (G.P.)*, p. 190).

Providing cues

A cue may fulfil several functions: it may be used for orientation; for tuning or for co-ordination (see *Cue stave*, p. 575); or to indicate a line that is to be played in the absence of, or to support, other forces (see *Playing cues*, p. 498).

For orientation

The number of bars' rest a player can reasonably be expected to count between entries without a cue depends on the complexity of the music. If in doubt, add a cue. The more complex the music, the greater the need for cues – even after only a few bars' rest.

A cue is essential before an important solo entry, so that the soloist has utmost confidence that the entry will be correctly placed.

Cues are useful after a change of tempo, so that the players can confirm correct counting in the new tempo, not (say) at half or double speed.

In long rest periods cues also provide landmarks (e.g. at section changes).

Provide plenty of cues in rhythmically complex music, in situations in which co-ordination will be difficult and when the pulse is inaudible.

In unconducted music, for security it may be very useful to provide a virtually continuous cue line during rest bars, so that the player does not have to rely solely on accurate counting.

What to cue

Selecting the most useful cue is an important aspect of preparing a part. Consider which type of cue is most helpful according to the most prominent features of the music, and combine any of the following options. A metre change or a G.P. bar indication helps players to identify their places and this may obviate the need for a cue.

MELODIC LINE

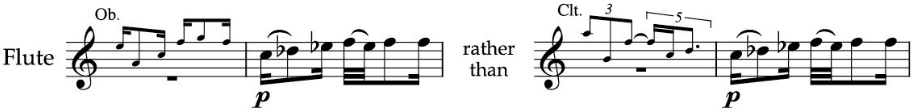
A melodic line provides an ideal cue:

- except when the line is too fast for the player to follow
- except when pitch is not a prominent feature of the material
- except when pitch clusters make an individual line difficult to hear

In these cases a rhythm is likely to be a more suitable cue (see opposite).

Select a cue that will definitely be audible to the player. This is more important than cueing the most musically significant entry. If in doubt, cue the line of a player sitting in close proximity. In a theatre pit, a player in the middle of the group may not hear a cue from a player seated at the side.

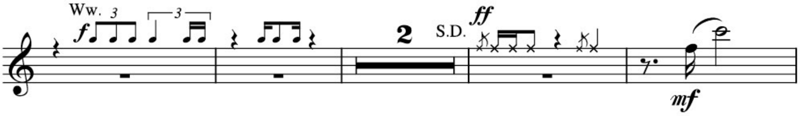
When there is a choice of cues, select a line with similar rhythmic material to the player's entry:



Note that chords are not useful as cues – it is the cue entry that is important.

RHYTHM

A rhythm alone is an appropriate cue when the material is predominantly rhythmic rather than melodic in character. Select, for example, the rhythm of a group of instruments playing in rhythmic unison. The rhythm may be cued either as notes placed just above the stave, or as stems without noteheads (although rhythms that have noteheads are easier to read). It is useful to distinguish a percussion cue by using crossed noteheads:

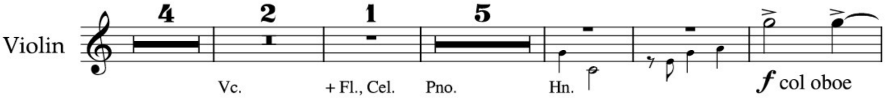


(See also *Rhythmic cue line*, p. 576.)

INDICATION OF PROMINENT ENTRIES

Prominent entries are useful markers during long rest periods and preceding a melodic or rhythmic cue. Indicate the instrument or section abbreviation under the bar in which it enters. If necessary, divide multiple-rest bars to do this. Vocal or choral entries may also be indicated in this way.

In rhythmically complex music, it is useful for the player to know when the part is in rhythmic or melodic unison with another player. This is marked 'col . . .' or 'with . . .' at the entry, usually below the stave and after any dynamic:



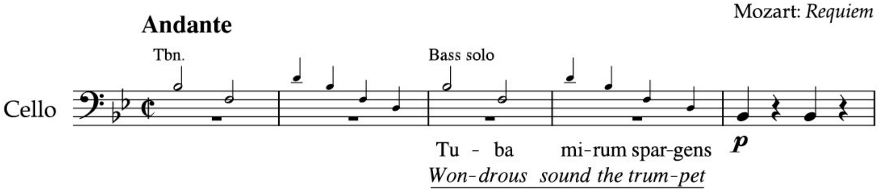
CUE FROM A SOLOIST, SINGER OR SPEAKER

Such a cue should be a last resort – either when there is no alternative cue, or when the instrument's entry depends on it: the soloist or singers may not be present at the first rehearsals. Furthermore, when, in performance, a singer or speaker is positioned at the front of the stage and the players behind, the players may not be able to hear the cue.

In a work for small ensemble, a soloist is likely to be present at initial rehearsals and therefore such a cue is appropriate.

Text for a vocal cue is placed below the stave. It must be distinguished from text instructions, either by using a smaller text size or by underlining. If there is more than one line of text, only the lowest line needs to be underlined (underlining is helpful to unify a text that otherwise appears fragmented on the page, but should be omitted if such a line parallel to the stave is distracting):

Mozart: *Requiem*



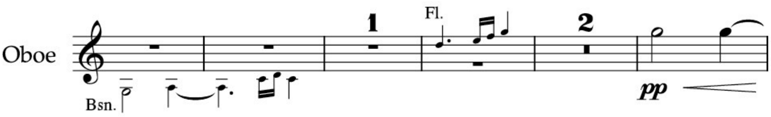
CUES TO AVOID

An instrument that may be imported only for a final rehearsal should not be used as a cue.

A repeated pattern is a dangerous cue, and may be confusing rather than helpful. Instead, select a cue that sounds once only. If repeated material is the only available melodic or rhythmic cue, indications of prominent entries may be more useful.

Extent of a cue

Give several bars of a cue before an entry. A distinctive entry a few bars before the player's next entry is better than a cue so close to the entry that a player has no time to remedy any miscounting. If necessary, cue more than one instrument to make a decent length of cue. The cue need not continue as far as the entry point if it has no further valuable rhythmic content:



When a cue unfolds into long, sustained notes it ceases to be useful. However, a succession of sustained-note entries can be combined to make up a sufficient melodic cue (see *Passage of sustained-note entries*, p. 572).

The most helpful cue is a short cue of a significant entry. A very long cue can be distracting and makes counting more difficult. A cue such as the 19 bars in the trombone part, from Bruckner's Symphony No. 9 (see p. 571), should be given only when the material is repetitive (each statement of the material is cued for safety) and when there are no other significant landmarks.

Cue notation

Size and spacing

Cue notation is about three-quarters the size of full-sized notation, so that it is conspicuously smaller than the player's material. All notation symbols that are part of the cue (including rests, accidentals, articulation and dynamics) are scaled down. Stem lengths are 2–2½ stave-spaces long. Cue notes are usually slightly larger than grace notes (stem lengths of both tend to be the same).

Ledger lines for cue notes should be the same vertical distance apart as full-sized ledger lines (although they are thinner) since it is important that cue notes are on the same level above or below the stave as full-sized notes.

Note spacing should be closed up within a cue: space characters in proportion to the reduced note size. Condensed horizontal spacing is good visual identification of a cue.

Cue content

Apart from an indication of instrumentation, pitch and rhythmic information is usually all that is needed from a cue.

Omit dynamics, articulation and phrasing except when they are important in the context, e.g. when they signal a change of texture.

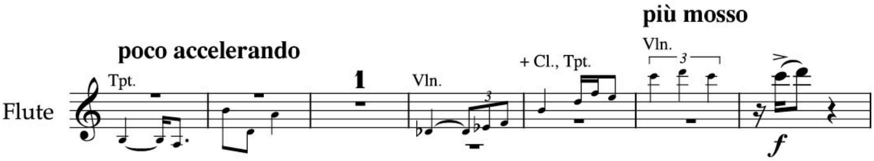
Ensure that harmonics (strings, harp and guitar) are notated at actual, not fingered, pitch.

At a page-turn, place a cue after (not before) it, so that the player has time to turn and then prepare for the next entry while reading the cue.

(See also *Playing cues*, p. 498.)

Labelling cues

Indicate the cued instrument or voice as an abbreviation at the stem end of the cue, above the stave for cues with conventional stem direction. Indicate instrumental changes during a cue, using the '+' sign for additional instruments:



Stem direction

There are two layout options, depending on available surrounding space.

1. CUE-STEMS REVERSED AWAY FROM THE STAVE

This layout requires plenty of space. It should be used in a hand-copied part and when a cue is required in the same bar as the player's entry (see *Cue in the same bar as the player's entry*, p. 571). Opposite stem direction clearly differentiates a cue from played notes.

A cue lying predominantly high on the stave takes up-stems; a cue low on the stave takes down-stems. Reverse ties (and slurs, if included) away from the stave. Place tuplet indications, articulation and dynamics (if used) outside the stave.

Keep the stems of the same cue (i.e. of the same instrument) in one direction. A second cue before the same entry can take opposite stem direction should its range fall in a different part of the stave (see oboe example, p. 568).

2. CUE-STEMS WITH ORDINARY STEM DIRECTION

This option saves vertical space in cramped conditions. If necessary, both up- and down-stems can be combined in one cue (see flute example, above): ordinary stem direction can be used for cue notes on ledger lines, while notes that fall within the stave take opposite stem direction to the player's line.

(See also *Cue bars without rests*, opposite.)

Whole-bar rests

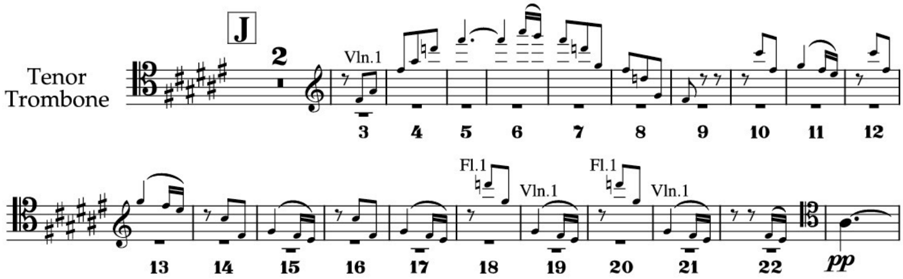
In general, it is easiest to count cue bars that contain whole-bar rests: the rests clarify the number of bars at a glance. For a very long cue it is helpful to number the rest bars (see following example). Where the cue follows on from a multiple-rest bar, it is helpful to continue the numbering from such a point (see also horn example, p. 572).

Rests are full-sized. When cue stems are reversed away from the stave, position the rests as in conventional two-part writing (see *Placing rests in double-stemmed writing*, p. 36).

Where possible, keep a succession of displaced whole-bar rests on the same stave-line, as this is easiest to read. (Many editions place the rests no closer to the cue than the top and bottom stave lines; others merely avoid the middle stave-line.) Place rests on ledger lines for bars in which they would otherwise collide with a cue. Move rests back to the edge of the stave for subsequent bars:

Entry preceded by 120 bars' rest

Bruckner: Symphony No.9

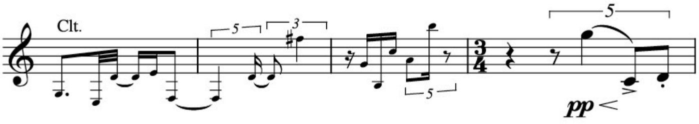


When a cue takes ordinary stem direction, whole-bar rests can be placed on the stave on either side of the cue (see flute example, opposite).

CUE BARS WITHOUT RESTS

Rests may be omitted from cue bars that have ordinary stem direction. This option is useful in music of already dense texture, where extra whole-bar rests would further clutter the stave.

There must be sufficient contrast in size between cue and full-sized notes so that it is absolutely clear that the cue should not be played:



In hand-copied parts, cues should always take rests, as the difference between cued and played notes may not otherwise be sufficiently obvious.

Cue in the same bar as the player's entry

Unless it is important to follow through a cue right up to an entry (e.g. to show how the player continues a phrase), finish a cue in the previous bar, so as not to obscure the entry.

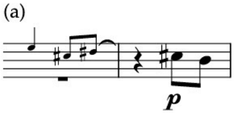
A cue may finish with an open tie, to avoid a tied cue-note in the entry bar (see following example (a); see also *Open ties*, below).

When a cue occurs in the same bar as the subsequent entry, give rests for the playing line up to its entry. The cue does not take rests to make up the value of the bar once the player has started.

The duration of the cue's last note may overlap with the player's line (b) but it is easier to read the rhythm if the cue is shortened so that it does not overlap (c).

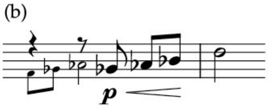
Allocate the player's line its own accidentals – those of a cue may be overlooked (b). Where appropriate, accidentals for a cue should be cancelled for the playing line, to avoid confusion (c):

(a)



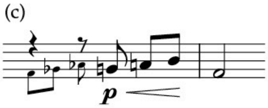
and

(b)



or

(c)



Open ties

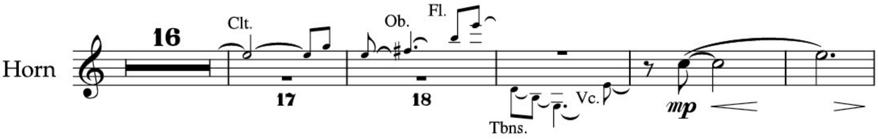
PASSAGE OF SUSTAINED-NOTE ENTRIES

A succession of sustained-note staggered entries may take the form of a melodic cue. Each sustained value is replaced by an open tie at the entry of the next instrument (see example below). The open tie indicates that the sustained note continues.

(See also *Open ties*, p. 72.)

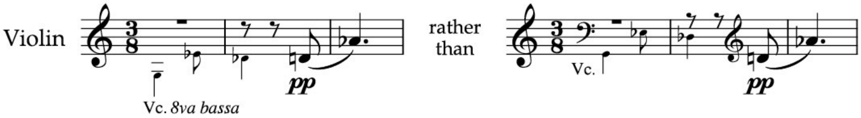
STARTING A CUE WITH A TIED NOTE

When it is convenient to start a cue mid-phrase, e.g. after a long tied note, it may begin with the tied note:

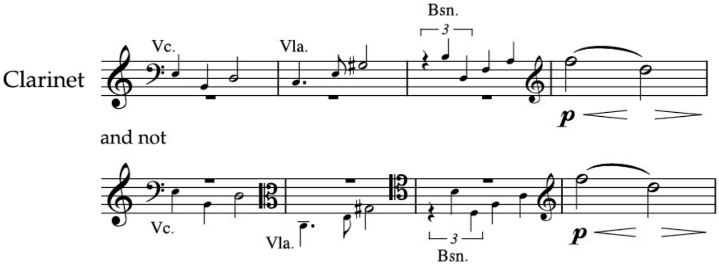


Clefs for cues

It is best to notate a cue in the player's current clef, especially when the cue is short. Should this require many ledger lines, transpose the cue one or more octaves and indicate the octave transposition. The resulting notation is less cluttered and thus quicker to read:



Extended cues, or a series of cues, may change more conveniently to treble or bass clef, in order to save adding many *8va* indications. However, never introduce a cue in the alto or tenor clef for an instrument that uses neither of these clefs:



POSITIONING CLEF CHANGES

The cue clef is the same size as a mid-system clef: about two-thirds of the full-sized clef (see *Changing clef*, p. 7).

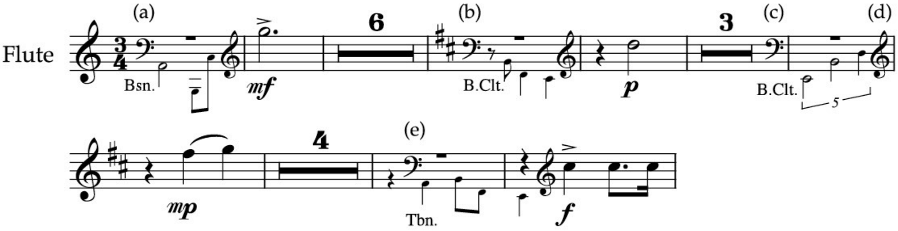
The cue clef should be as close to its cue notes as possible. Thus, where a bar has a new key signature or time signature, place the cue clef after these changes (see position of bass clef in the following example (a) and (b)).

When a cue begins immediately after the barline, place the cue clef before the barline (c).

When rests precede a cue at the beginning of a bar, the clef may be placed after the rests so that it remains close to its cue (e).

It is good practice to retain the player's clef at the beginning of the stave at all times – a flute part that appears to begin in the bass clef does not inspire confidence. The cue clef always comes afterwards, as at (a).

Reinstate the player's clef before an entry. Where the next entry is at the beginning of a line, add a cautionary clef for the player at the end of the previous line (d):



By contrast, where a cue begins at the start of a line, no warning cue clef need be given on the previous line.

Transposition

A cue should be transposed into the key of the playing instrument, as if the player is to play the cue. This enables a player to blend with the cued pitch (see example below).

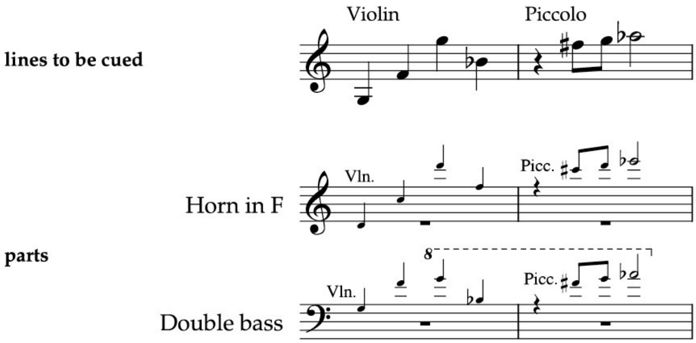
A player who doubles on an instrument of different transposition must have cues correctly transposed into the key of the instrument of the following entry, i.e. after the change of instrument instruction. For example, an oboe part doubling cor anglais should have cues written at concert pitch before oboe entries. Cues before cor anglais entries should be written in F.

A new key signature for the different transposition should coincide with an instrument-change instruction (see oboe example, p. 559). Alternatively, if the new instrument enters after a change of musical section and there is no previous cue, it is sensible to commence the new key signature with the new section (i.e. after a thin double barline, if one is present).

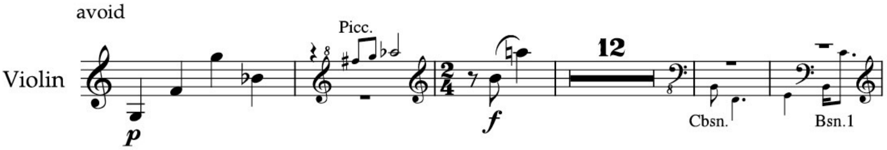
Cues and octave-transposing instruments

For instruments that sound at a different octave from their written pitch, such as piccolo and double bass, cue pitches should be notated at the octave at which they appear in the score. A cue of an octave-transposing instrument (such as the piccolo cue, below) is notated at written pitch – again, as it appears in a score – so as to avoid the ledger lines that would be necessary if it were notated at sounding pitch. (In the horn part below, the piccolo notes are transposed into F, following the octave of the score's written piccolo pitches.)

Do not indicate octave signs other than to give the correct written octave for the cue – see the following double bass part:



The use of octave-transposing clefs for cues adds unnecessary information to the part; such clefs also need to be replaced with ordinary clefs for the playing instrument, further cluttering the music. Omit these extra clefs:



If a player's line uses octave-transposing clefs (e.g. a piccolo or double bass line), it is unnecessary to add ordinary clefs for a cue – it is assumed that the cue is notated as written in the score.

Cue stave

When to use a cue stave

A cue stave allows for cues simultaneous with the player's line. A cue stave is essential for synchronising the following:

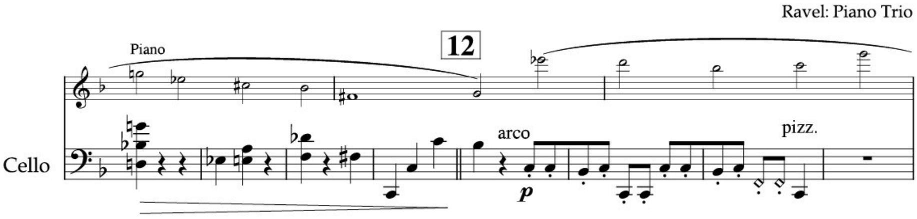
- accompanied recitative (cue both vocal line and text for the duration of the recitative)
- unconducted music of complex co-ordination
- parts with individual metre or tempo (see *Non-coinciding barlines*, p. 577)
- parts with complete rhythmic independence (see *Independent parts within an ensemble*, p. 613)
- parts without metre or with independent ensemble (see *Indicating synchronization (Unmeasured bars and independent ensemble)*, p. 616; also, *Proportional spacing: Cues in instrumental parts*, p. 639)
- parts with independent repetition (see *Independent repetition: Cues in instrumental parts*, p. 627)

A cue stave is also used to notate alternative material for passages of exceptional technical difficulty (see *Practical alternatives to technical difficulties*, p. 497), and, in string writing, to indicate sounding pitches that differ from written pitches (see *Harmonics: Indicating sounding pitches*, p. 421, and *Scordatura*, p. 424).

Layout

A cue stave is about three-quarters of the full-sized stave. It is usually placed above the player's line, in order to be clear of the player's dynamics.

Include the cue stave or line only for as many bars as necessary – it may start and finish at any point on the system (see oboe example, opposite). At the beginning of the system it is joined to the player's stave by a systemic barline. Where barlines coincide, join the cue and the player's stave together with dotted or solid barlines, for clarity (end of last bar, below). Since so few barlines coincide in the section below, solid barlines are used, to be most conspicuous:



Tempi and rehearsal marks should appear above the cue stave (see oboe example, opposite).

Include a cue stave only when there is essential interaction between performers that requires them to see each other's lines; once a player has started playing, a cue stave creates a plethora of information on the page that can distract the player.

Use only a single cue stave. Simultaneous entries of more than one instrument can be cued, if necessary, by using opposite stem directions (see oboe example, opposite). However, a judicious selection of short cue entries is usually better than a virtual short score of the other lines – which is likely to render the cue too dense to be read easily.

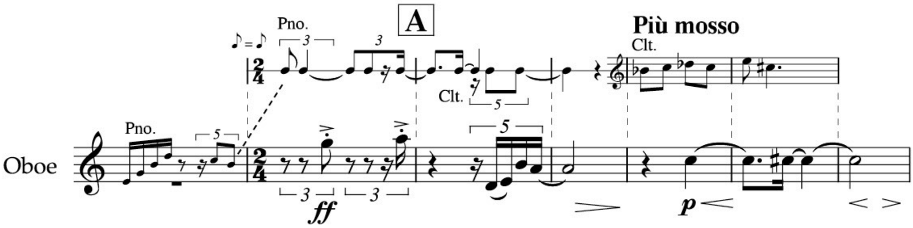
Rhythmic cue line

A rhythm cue pares information to a minimum and is very economical of space. It is often possible to fit in a rhythm cue (with or without a stave line) where there would be no room for a cue stave. The rhythm cue will show how two parts interact rhythmically, which is usually all that is required of a cue. A rhythm cue is particularly suitable where the player already has a complex part and cannot afford to be distracted by more than a minimum of cue information.

A rhythmic cue line may alternate with a cue stave if some melodic indication is required in other places.

A cue from a second instrument takes opposite stem direction (see bar 3, opposite). If two instruments alternate in a cue, this saves labelling each entry, thus making the cue line less cluttered.

During rests, a cue may move to the player's stave, and back to the cue stave (or line) at the player's entry. Add a dotted diagonal line to show where the cue moves:



(See also example under *Conductor signals in instrumental parts*, p. 618.)

The parts of Elliott Carter's chamber music pieces frequently use rhythmic cue lines simultaneously with the playing part, often for space-saving reasons: see, for example, Duo for violin and piano, the String Quartets and the Brass Quintet.

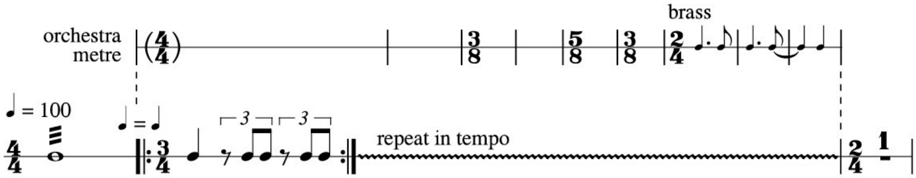
Non-coinciding barlines

A continuous cue stave may be used to show how parts co-ordinate when they have different bar lengths (see Ravel example, opposite). The cue shows the intended rhythmic alignment between parts by providing the necessary information of the simultaneous metre. (See also the extract from Bliss's Oboe Quintet, p. 176: this extract could function as a cello part, the stave above being a cue, since it provides the necessary information of the simultaneous metre; see also *Polymetre*, p. 174.)

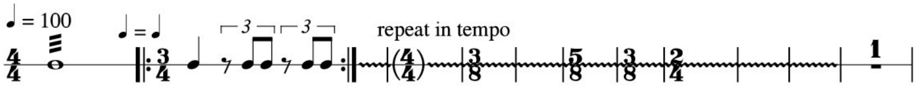
Often a cue line of rhythm is all that is necessary.

REPETITION IN INDEPENDENT METRE OR TEMPO

When a player repeats material strictly in time but in an independent metre or tempo, it may be useful to show the exact relationship of the part to the ensemble's bars. This is so that the player can measure the part against it and know when to move on. It may be sufficient to indicate merely the ensemble's barring. However, a written cue towards the end of the repetition sequence is likely to be helpful. Place the cue on a separate cue stave or line – but not on the player's own stave – so that the barlines of each are clear. (When the independent part has a separate metre from the ensemble, indicating both on the player's stave is confusing as the player is likely to lose the place if the repeat barlines do not coincide with those of the ensemble.)


brass
orchestra metre
(4/4)
3/8
5/8
3/8
2/4
♩ = 100
4/4
♩ = ♩
3/4
3
3
repeat in tempo
2/4
1

rather than


♩ = 100
4/4
♩ = ♩
3/4
3
3
repeat in tempo
(4/4)
3/8
5/8
3/8
2/4
1

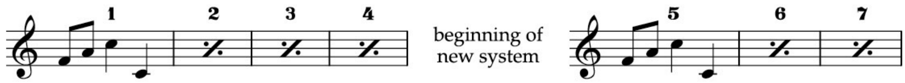
(See also *Independent repetition*: *Cueing the metred ensemble's barlines*, p. 628.)

Repeated bars

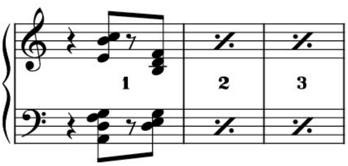
It is best to notate bars of repeated material in full in an instrumental part, if there is room, so that the eye can travel forward with each bar. However, bars of very simple material may use the one-bar or two-bar repeat signs. If the material is complex and repeat-bar signs 𝄎 are used, there is a serious risk that players may miscount if they must look back to the beginning of the line as well as follow the music forward.

It is very helpful to number bars of repeated material, whether the material is notated in full or with repeat-bar signs. The first statement of the material is labelled '1'. Never number the first repeat as '1': this is very confusing for the player, who is playing the material for the second time.

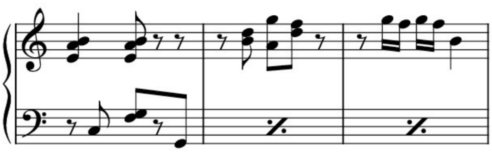
If the repeat-bar sign is used, notate the repeat in full for the first bar of each system but number consecutively from the first statement of the material:


1
2
3
4
beginning of new system
5
6
7

In a braced part, use repeat-bar signs only when the material repeats on both staves since otherwise it is too confusing for the player:

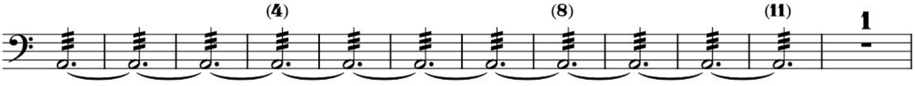


and not



(See also *Repeated bars*, p. 231.)

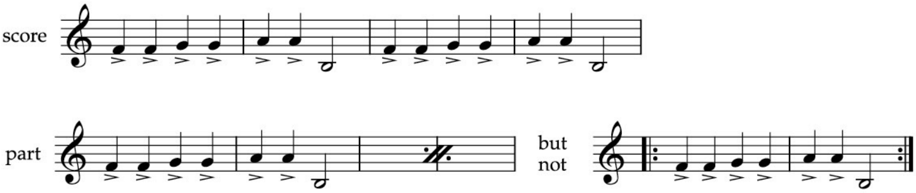
It is helpful to number bars of a single sustained or repeated note. In an extended passage, every four bars (or the appropriate phrase length) may be sufficient:



(For use of repeat-bar signs in a percussion part, see *Percussion*, p. 586.)

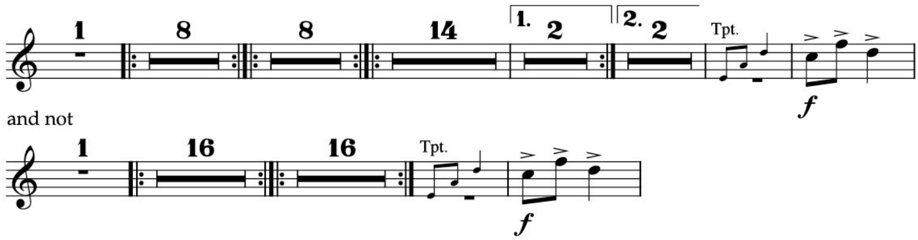
Repeated sections

Repeated section in instrumental parts must correspond exactly with the layout of a score. Parts must have the same number of notated bars as a score and repeats must occur in identical places in all material, to avoid confusion during rehearsal. Do not create a repeat section in an instrumental part that is notated in full in a score as consecutive bars; use the repeat-bar sign 𝄎 instead:



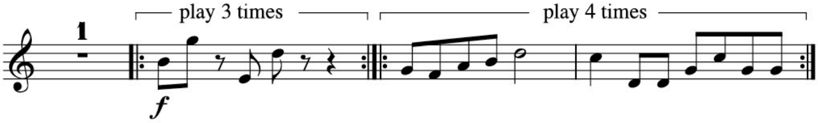
Repeated sections should correspond with score layout even where some players have rests. For example, two repeated sections of eight bars each should not be amalgamated into one 16-bar repeat (see following example).

First- and second-time bars that occur in a score should be written into all performers' parts even where they have rests or where no variation occurs in their repeat. This is so that there can be no confusion when a first- or second-time bar is a starting point in rehearsal:



MULTIPLE-REPEAT SECTIONS

When material is to be repeated several times and all performers have identical lengths and numbers of repeats, repeat barlines may frame one or more bars of repetition in place of consecutive bars. Performance of such repetition requires greater concentration than when material is written out as consecutive bars, since the eye cannot travel forwards with each bar. For rehearsal purposes it is essential that the repeats coincide in all printed parts:



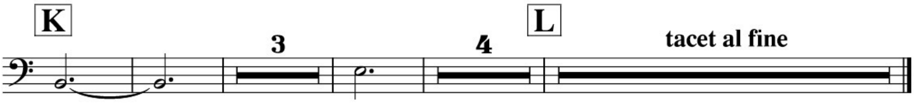
(See also *Independent repetition: Duration of repetition*, p. 624.)

Tacet

The direction *tacet* ('it is silent', plural *tacent*) obviates the need to notate rests in the following contexts.

When a player does not play for a whole movement this is indicated, for instance, *Movement II – tacet*. When a subsequent movement follows on without a break, and a player is to play at the start of the movement, it is necessary to indicate the length of the previous one. In this case *tacet* should not be used; the duration of the movement must be indicated by rests, providing all rehearsal marks, time signature and key changes, and with cues as appropriate.

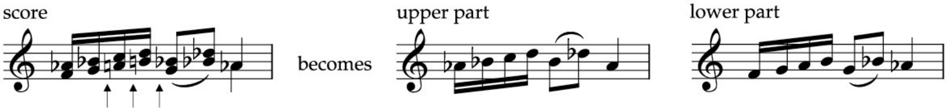
When a player has finished playing for the remainder of a piece, this is indicated *tacet al fine*. For orientation in rehearsal, place the instruction after a subsequent rehearsal mark:



When a player has a long rest period in the middle of a movement, do not replace multiple-rest bars with *tacet*: even with cues included before a subsequent entry, the player would have no idea when to expect those cues.

Accidentals

When single-player parts are extracted from a score in which a stave contains two or more lines, accidentals used to confirm the pitch of a note in one voice that had been altered for another voice (marked ↑) may become redundant:



(See also *Accidentals relevant to more than one part on a stave*, p. 79.)

Enharmonic note-spelling

In tonal music, the written pitches in a part should agree with the key of the piece and its modulations: it is not helpful to 'simplify' modulations to remote keys by changing the note-spelling from that in the score if this obscures the harmonic sense. (The case may be different for a transposed part – see *Enharmonic key changes* and *Enharmonic note-spelling*, pp. 252–3.)

In both tonal and non-tonal music, the tendency to spell chords in a score vertically to clarify their harmonic sense may produce awkward intervals for the individual performer reading only their own line. Such vertical spelling should be relinquished in favour of linear melodic spelling, ideally in both score and instrumental part (see *Note-spelling*, p. 85).

Combined-instrument parts

Duets

A piece for two players is usually written on one printed part, since it is important for each player to see how the lines interact at all times. Both players have a stave each throughout. A duet part may be useful also for two players in chamber music (e.g. for the violinist and cellist of a piano trio) for the same reason, provided that page-turns are possible for each player. (For an example of duet layout, see example for two flutes, p. 583.)

Woodwind and brass

In orchestral music, it is usual for each player to have an individual printed part, even though lines of two or more players may be combined onto one stave in a score to save space.

Pairs of the same instrument may be combined onto a single part:

- when one instrument has only very occasional entries
- in a piece of predominantly dovetailed entries between the pair of instruments
- in a work specifically designed for amateurs

In these cases it is useful for each player to see how the two lines interact, and to have the music of their neighbouring player as a cue.

A combined part may be less convenient for a long work, due to the likely increase in number of page-turns.

Each player should have a separate stave unless the lines are in melodic unison or one is silent for extended periods: it is distracting for players to read a line other than their own on the same stave.

A single stave should not be shared between two players playing differently transposed instruments simultaneously – e.g. a flute part in which the second player is playing piccolo. (Where the two instruments have different transpositions throughout, it is better for them not to share a part.)

So that it is absolutely clear who is to play, a single stave must be labelled for each entry: by player number, or with *a 2* for a unison.

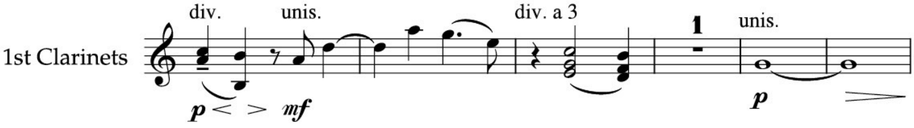
Multiple-player parts

This section refers to an instrumental part that may be played by an unspecified number of the same instrument: a predominantly single-line part with occasional division. This layout is standard practice in multiple-player wind band parts (see *Instrumental parts*, p. 545). In brass band music, the copy for the four solo cornets is also a combined part (see *Instrumental parts*, p. 548). All players play from the same (duplicated) copy.

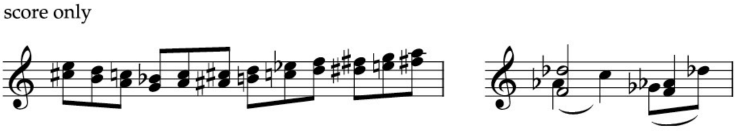
In melodic unison, write the multiple-instrument part as a single line. Assign it a unison indication after a division (see example below).

DIVIDED LINE ON A SINGLE STAVE

When a line divides, it is best to place each division on a separate stave. However, to save space in order to facilitate a feasible page-turn, two divisions may share a stave for an occasional short phrase as long as the lines are predominantly in rhythmic unison, they do not overlap and they share dynamics. Where space is very limited, an isolated short phrase divided into three is also acceptable on a single stave. The lines may share stems, phrasing and articulation:



It is a false economy to put a divided line onto a single stave if it is difficult to work out who plays which pitches. This layout will only increase the danger of performance error; passages in close position are particularly tricky to read:



Single- and double-stave layout may be alternated on one part as necessary.

Layout of combined-instrument parts

Bracket together and bar through the two or more staves of the system: this clarifies the system breaks (see example below).

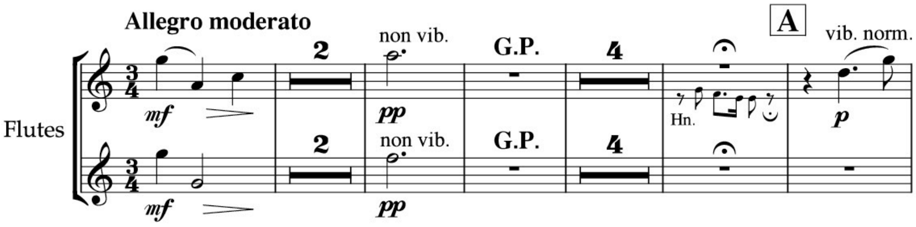
On the first divided system, label each stave by player number or division in the margin (see Violin I's part in example *Score and part: comparative layout*, p. 585); the labelling is unnecessary if two parts appear on two staves throughout – as might be the case in the example for two flutes, below. Thereafter labelling is required only at a change of division or layout.

Give tempo indications and rehearsal marks once, above the top stave.

Assign dynamics to each stave. A player is used to seeing dynamics below the stave, and may fail to notice if they are placed between the staves, to be shared with the line above (as might be used in a score).

Provide technical instructions and numerals for multiple-rest bars above each stave so that they are not overlooked.

A cue is required on one stave only (usually the upper stave):



Divided string lines

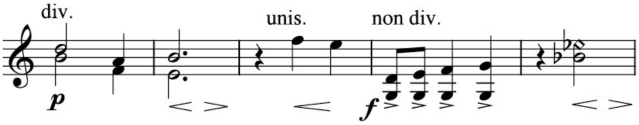
In a conventional orchestral set-up, each string member (1st violin, 2nd violin, viola, cello and bass sections) is laid out on one part regardless of the number of divisions and solos. However, when a piece is scored for double string orchestra or a set-up where some players will be seated separately (e.g. off-stage players), each group has independent printed parts.

When a multi-divided part requires separate staves for individual lines, it may be that only a few bars will fit onto a double-page spread. In this exceptional cirumstance, to avoid frequent page-turns, divide the section into two or more separate parts, e.g. one copy for each desk or pairs of desks. Clearly mark the front of each part: for instance, *Violin II, desk 2* (see *Player allocation*, p. 429).

DIVIDED LINE ON A SINGLE STAVE

A string division may be placed on one stave when the writing is straightforward. The same provisos apply as for any multiple-player part (see *Divided line on a single stave*, p. 582). Division must always be labelled, to avoid ambiguity with multiple-stopping (see *Divided string ensemble*, p. 428).

Stem each line separately, to distinguish division from double-stopping (single stems for two lines are permissible only in a full score):



Allocate each line a separate stave for an extended division, and where the lines are not in rhythmic unison, since bowing marks and bowing slurs are difficult to read for down-stemmed notes (see *Bowing marks*, p. 405).

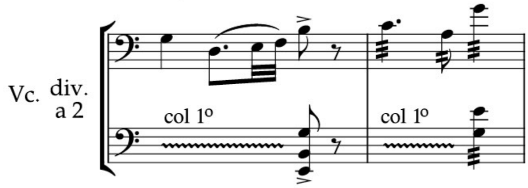
For an extended division into three (i.e. more than the occasional chord), place two lines on one stave, the third on a separate stave.

STAVE LAYOUT FOR DIVISIONS

Single-stave and multiple-stave systems can be interchanged as necessary.

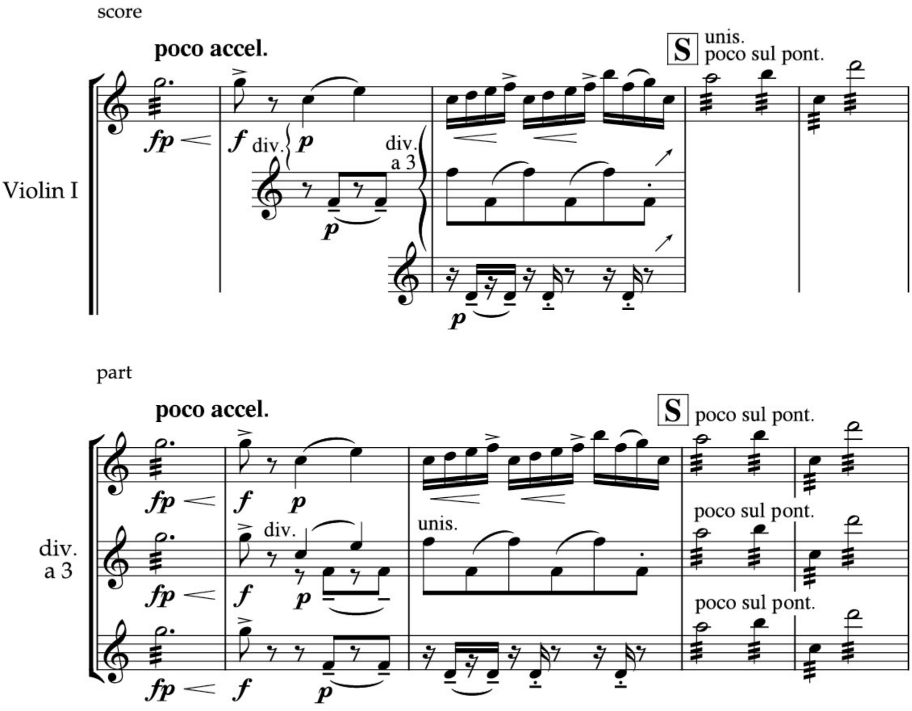
A player should never be asked to move stave mid-system. When divided and unison writing alternates during a system, duplicate the unison writing on all staves so that no player needs to swap stave. The following shorthand notation for a unison passage is a time-saving device acceptable only in a composer's full-score sketch:

not acceptable


Vc.
div.
a 2
col 1º
col 1º

A part may require a different layout from the score. A typical example is a change from *div. a 2* to *div. a 3*. Arrange the part so that it takes account of all division permutations for the length of a system. This may entail further subdividing one of the lines to allow the different divisions to have balanced forces. In the following example, division into three is calculated from the beginning of the system. The middle line of the three divides into two, to allow equal numbers of players to take both musical lines for the division into two:

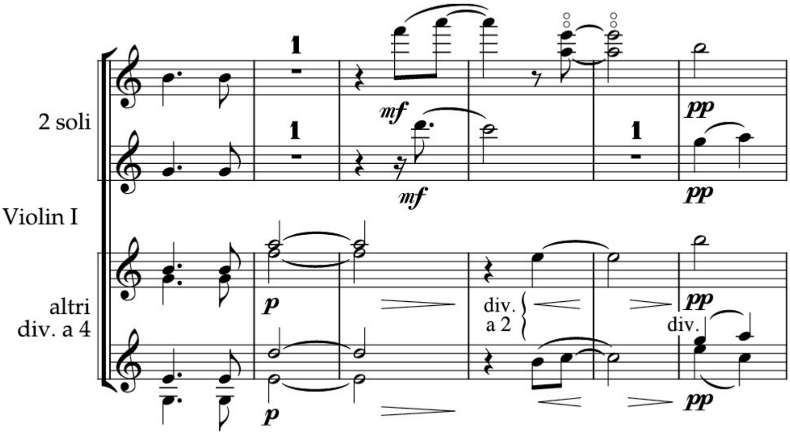
Score and part: comparative layout


score
poco accel.
S
unis.
poco sul pont.
fp
f
div.
p
div.
a 3
Violin I
part
poco accel.
S
poco sul pont.
div.
a 3
div.
unis.
poco sul pont.
poco sul pont.

When a division of the section subdivides, add a further *div.* indication. If legible, keep the subdivision on one stave, so as to use a minimum number of staves (see following example).

A solo line takes a separate stave at the top of the section. Include a stave for a solo line for a complete system, even when a solo joins other players, so that the solo player is not required to change stave mid-system. When there are more than two staves to a system, solo staves may be barred separately from the rest of the section, in order to separate them visually. Bracket all staves together at the beginning of the system.

It is helpful to label a complex set-up (such as below) on each system, so that players can identify their lines quickly. Mid-system, mark a division change between the staves:



Percussion

Players who need to locate different instruments, reposition themselves and their music for a change of instrument, change sticks, damp resonances, watch the conductor and occasionally look at their copies, need all the help they can to read their music as easily as possible. They may need to read the copy at an oblique angle or even over their shoulder.

Use a generous stave size for percussion parts, since the music stand may be some distance from the player. Do not use too large a page size, since copies may need to be transferred from stand to stand in performance.

Ensure that the notation is as straightforward as possible. Keep written instructions to a minimum, and avoid elaborate symbols (see *Using symbols*, p. 275).

Repeat-bar signs: A percussion part is not a licence to use repeat-bar notation at all times. Except for the repetition of the simplest rhythms, use repeat-bar signs (𝄎) sparingly. Numbering bars of repeated material minimises the time necessary to look at the copy (see marimba example, p. 588).

The basic principle of laying out a percussion part of more than one instrument is to distribute instruments amongst a minimum number of players (see *Allocating instruments to players*, p. 271).

Where possible write all instruments for one player on one stave or a group of lines (see *Layout of instruments of definite and indefinite pitch for one player*, p. 287; also, *Instruments of indefinite pitch*, p. 278; for tuned percussion instruments, see *Number of staves for one player*, p. 276).

Timpani

In an orchestral piece the timpanist has an individual part separate from other percussionists. An orchestral timpanist rarely doubles any percussion instruments, although a percussion player may play a second set of timpani. In this case the second set of drums is written into the relevant percussion, not timpani, part.

Percussion playing score or individual parts

The player assigned to a single instrument throughout has an individual part. Otherwise, in the first instance, the safest option is to group all the percussion into a playing score, provided that page-turning is possible for all players (see *Percussion playing-score layout*, p. 588). Once the instrument distribution has been seen to work, or reworked as necessary, then individual parts can be created for the future.

When it is not possible to find page-turns for all players at the same time, the playing score should be divided up so that two or three players share a part, e.g. one part for players 1 and 2, one for players 3 and 4, etc.

The advantages of a playing score are that the players can then rearrange the instrument allocation or assign some instruments to an extra player (if available), and all lines function as cues for each other.

A potential problem is frequent page-turns. This is unhelpful to a player who may be some distance from the music stand, the other side of a large assortment of instruments. Note that to turn a page with two or more sticks in each hand takes three times longer than normal. Additionally, a player may have a second copy for use at a different group of instruments and therefore need to turn two copies during a rest.

Another drawback is that once a playing score has many staves, the distraction of so much information outweighs the benefit of having the other lines as cues.

Percussion ensemble: In a work for percussion ensemble, allocate each player a separate part. When two players play the same instrument together (e.g. a large keyboard-percussion instrument), then these two players have a combined part. Ensure correct labelling of such a copy, e.g. 'Marimba (2 players)'; the indication 'Marimba 1 and 2' would suggest two instruments.

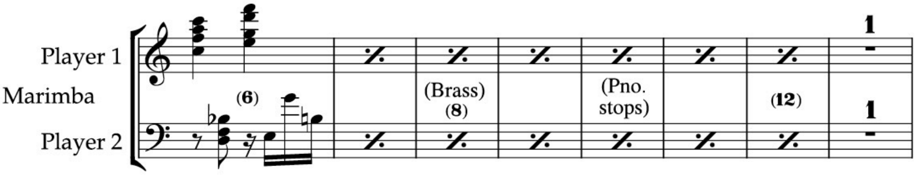
PERCUSSION PLAYING-SCORE LAYOUT

Allocate each player a separate stave or group of lines and place these in player order (see *Score order of players*, p. 272). Never change the stave order as each player identifies his or her line from its relative position within the system. Therefore, ideally, keep a line or stave for each player throughout. If it is necessary to condense the layout to help page-turning, resting players' staves or lines may have to be deleted; this is acceptable as long as each stave is given a player number throughout.

Organize the layout of the playing score as a combined-instrumental copy (see p. 583). It is particularly important that barlines and margin brackets join the staves or lines of all players, to clarify the system breaks: it is more difficult to identify system breaks where systems comprise three or four staves. However, when several players each have more than a single stave or group of lines, it may be more useful to separate barlines between players, to clarify the distribution of lines (see *Sample percussion score*, p. 272).

Cues

Cue instruments that are close to hand (e.g. keyboards): percussionists may be a good distance behind the rest of the orchestra. Cue another percussion entry only if that instrument is unique to the passage: e.g. do not cue a tam-tam stroke if three players each play a tam-tam in the same passage. A cue midway through a long section of repeated material is useful (indication of an instrument entry or where another player stops may be sufficient):



(See also *Playing score*, p. 538; *Bar numbers* and *Rehearsal marks*, p. 484; and *Indentation and layout between movements*, p. 486.)

19

Electroacoustic Music

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Introduction

Electronic components are playing an increasingly important role in the twenty-first century and raise particular notational issues. Increasingly, new technological developments enable composers to work with sophisticated live synthesis and transformation of sounds using computers. It is a rapidly developing area and new works often present new notational issues. This chapter will seek to establish some general principles using illustrations from existing practice.

Various terms are used to describe the musicians or sound engineers who perform the electroacoustic element of a work. The roles may vary and overlap and there is little standardization in terminology. In the context of this chapter, the term *technician* defines the role – although often great musicality is required of the electroacoustic performer. *Performer* or *acoustic performer* defines a musician playing an acoustic instrument or singing. Sometimes the acoustic performer may also be involved in realizing aspects of the electroacoustic element, e.g. triggering changes using a footpedal.

Equipment

Provide a detailed list of the equipment required for the performance. Diagrams explaining how equipment is to be set up can often play a vital role.

In the preface to the score and to any separate technical copies (e.g. for a synthesizer), specify:

- the complete technical requirements for a piece
- the number of technicians required
- where essential, the precise make and model of synthesizer or processing equipment
- otherwise, general information about the type of synthesizer, the keyboard range, the number and type of controllers (e.g. velocity-sensitive keyboard, pitch-bend wheel, after-touch), and footpedals
- where computers are used, full details of the required specification of both hardware and software
- a diagram explaining how the equipment is to be set up
- a diagram indicating the layout of loudspeakers and the position of the mixing desk and performers in the hall (optional)

(A model of good practice is to be found in IRCAM's specifications, available as separate documents, which give detailed information on its commissions.)

Amount and type of notation for the score

The appropriate amount and type of information depends on the function of the score.

SCORE FOR STUDY AND ANALYSIS

As a record of the content of a work, information may be as detailed as the composer wishes. A graphic description may be useful for sound-diffusion purposes, even when there is no live instrumentalist or singer (see, for instance, Stockhausen's *Telemusik*).

SCORE AS A PERFORMANCE TOOL

The function of notating electroacoustic sounds (either pre-recorded or processed live) is to describe them with as many points of reference as are necessary to co-ordinate performers and the electronic component, and/or to give all necessary information to the technician.

Traditional notation or graphic illustration is often of most help (see below). Graphic display of the audio waveform is usually unhelpful, as it gives no indication of timbre or pitch content.

Keep information to a minimum. It is important not to overload a score with detailed information that will confuse performers. Only for complex interaction between performer and electronic sounds might it be appropriate to include elaborate detail.

The recommendations in this chapter are intended primarily for notation as a performance tool.

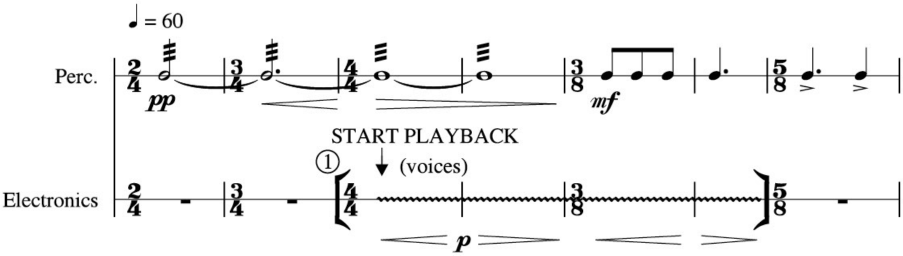
Notation and co-ordination

Where performers do not interact with pre-recorded material (fixed media), representation of the electronic sounds can be minimal. The technician activating the recording needs to know:

- where to start and to stop the recording
- how long the recording lasts
- the dynamics, to balance with acoustic instruments or voices (see *Dynamics for electronic sounds*, p. 598)

The basic notational requirement is, therefore, duration. It is simplest to indicate this (and to read it) as a continuous band (a straight or wavy line) on a single- or five-line stave. If helpful, add a verbal description of the electronic sounds (see following example).

To make the starting and stopping points of a recording obvious, centre opening and closing brackets on the stave. All CD tracks or individual sound files must be numbered, and numerals framed clearly above the stave (① below = Track 1):

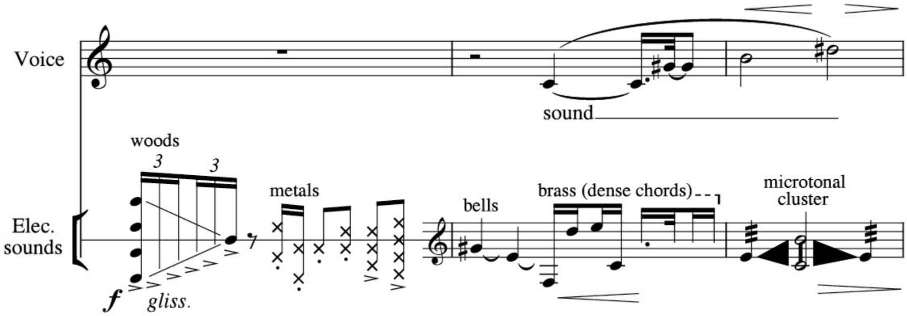


When performers require cues or must synchronize with a recording or live processing, provide notation of significant events. The most appropriate notation depends on the nature of the music and the type of co-ordination required.

Rhythm and pitch cues

Distinctive rhythmic and pitched materials are the clearest cues. Where rhythms would be the most helpful element, providing pitches may be irrelevant. (To provide an indication of pitch contour, see *Options to show approximate pitch*, p. 640). Description is simplified by replacing the five-line stave with one (or more) lines. Different notehead shapes may indicate contrasting textures. The line (or lines) may alternate with a five-line stave, should selected sections be notated more helpfully as pitched material. Pitched cues may be necessary only where the performer has to tune to the electronic part (bar 2, below).

Large dense chords can provide too much information and may be replaced by a single melodic line or even rhythms alone. For example, Harvey's *Bhakti*, movement II, deals with such chords in precisely this way (the following bars 1–2 have similar notation):



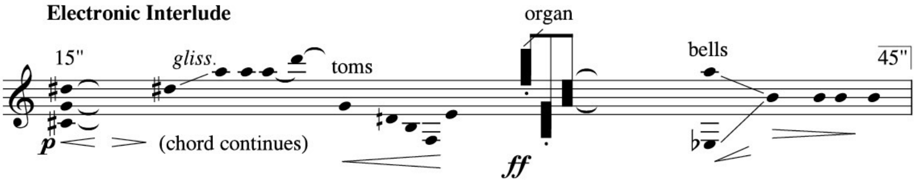
Saariaho's *Jardin Secret II* for harpsichord and electronics and Harvey's *Advaya* for cello and electronics are good models of appropriate information required from an electronic cue. In the Saariaho extract (p. 600), rhythm cues predominate and pitches are notated only where they are important as a cue (see 3'44"); contrasting graphics portray different timbres. In the Harvey extract (p. 606), minimum information in the CD parts is sufficient for orientation and as an indication of content for the technician.

Complex interaction may require a greater level of detail, but only in such circumstances should elaborate descriptions of sounds be given; otherwise it can be difficult to pick out the information that is really important.

Proportional spacing

Proportional spacing may be an ideal notation for electronic sounds, especially where there is no discernible pulse, where the material does not fit into conventional metrical patterns, and where it is inappropriate to notate complex metrical patterns (see *Proportional spacing*, p. 629). If time-space notation can simplify an electronic part, this helps the musicians, who may need to follow it at the same time as reading their own lines (or the score).

The appropriate notation depends on its function. If it is important to indicate sustained duration (e.g. for tuning), use extenders after noteheads (see example under *MIDI sequence as cues*, p. 602). If only the timing of events is important, stemless noteheads are efficient notation:

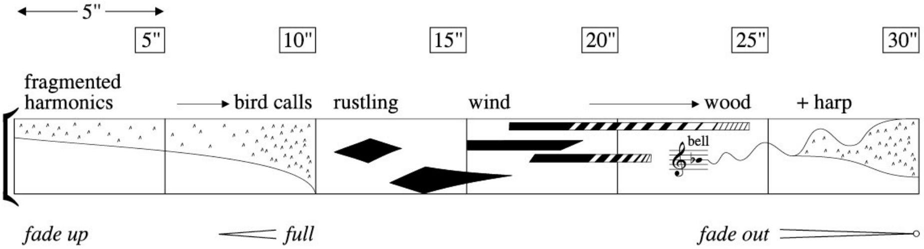


(See *Proportional spacing: Notation options*, p. 631; see also the Harvey extract, p. 606, where the notation of the CD1 part is spaced proportionally.)

Graphic illustration

Simple graphic illustration may be used for describing notation elements – pitch, rhythm, texture (a complex sound of many components) and other aspects of the sound – that would otherwise be too complex or even impossible to describe by conventional means, or when it would be inappropriate or burdensome to do so. Uncomplicated graphics can be quicker to read than either a stave of conventional notation or verbal description, although brief verbal description enables the eye to relate the graphics to the sonority.

Graphic illustration is efficient for describing contrasting and changing timbre (i.e. modification of a single sonority), since there is no traditional notation to indicate how sound is changed in this way. Illustrate duration of textures, pitch or other aspects of the sound as horizontal bands on a stave or between a grid of two lines using proportional spacing principles. The width of the band should reflect pitch range (high frequency at the top); changing pitch spectra can be reflected by changing the band's contours. The band may be filled in with lines, cross-hatching or other patterns so that each pattern can represent a different texture. Changes in pattern density can reflect changing density of texture (see section 0–10'', below); changing patterns can reflect changes to the quality of the sound (15–25''):



To avoid anything other than minimal verbal description in the score itself, define the representation of particular textures in a preface. Too much description in an electronic part that functions primarily as a cue for co-ordination is distracting.

(See also *Symbols to replace repeated instructions*, p. 494; also, *Timings for pre-recorded material*, p. 600.)

Where there is room, simultaneous different timbres may be represented on separate staves or lines. This separation enables sounds to be illustrated in different ways on the different staves or lines, e.g. combining conventional notation with graphics, if appropriate (see *Different timbres / textures*, layout (c), p. 597). In the extract from Harvey's *Advaya* (p. 606), the CD2 part presents in simple graphic form varying intensity of granulated reverberation: by placing a single wavy line on the stave after the established pitches, the density of the curves corresponds to the varying intensity of the reverberation; the more compressed shapes represent greater intensity (resulting in a louder dynamic).

Layout of the electronic component

In a score, the most appropriate position for an electronic part and any verbal specifications depend on the function of the information.

BOTTOM OF THE SYSTEM

The bottom of a system is always the most conspicuous place for copious technical information (if needed). Place the electronic part in this position, below the staves of acoustic performers:

- when it is primarily a set of instructions for the technician (including amplification)
- when an ensemble work contains a detailed or dense pre-recorded part: the electronic part is then visually separated from the ensemble texture
- in a piece for electronics and one or two performers in which the performers play from the score; the performers' lines are clearest to read at the top of the system, and best placed directly below tempi and rehearsal marks

MIDDLE OF THE SYSTEM

When electronic sounds are generated via a trigger from an acoustic instrument (including an electronic keyboard), there is an obvious advantage in placing resultant sounds (if notated) on staves adjacent to – usually below – those of the appropriate acoustic performer. Thus the technician and conductor (if the work is conducted) can see how to balance the sound while following the individual parts (for illustration of layout, see example *Different timbres/textures*, opposite).

A keyboard trigger part is normally placed in the score position of an ordinary keyboard part. This might well be in the middle of the score. However, when a score requires detailed description of an electronic part, consider placing both the trigger and the resultant-sounds staves at the bottom of the score for the reasons given above. (See also *Trigger keyboard*, p. 601.)

Instructions for the technician relating to the trigger instrument that consequently appear in the middle of a score system should be boxed, to be clearly visible (see fader instructions in electronic keyboard example, p. 599).

LAYOUT IN A PART

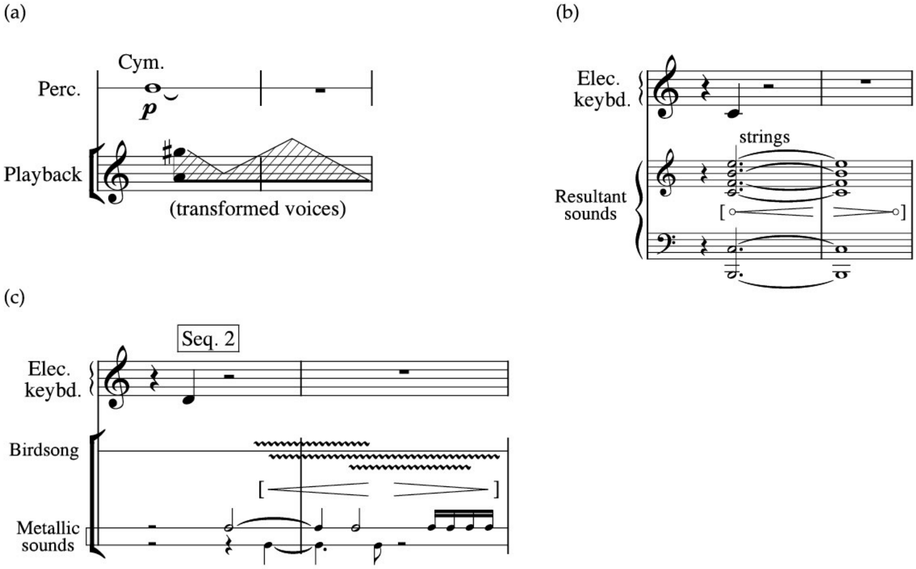
When ensemble players have individual instrumental parts and require intermittent cues of electronic sounds, place these cues in normal cue position, i.e. above a player's own line (see *Cue stave: Layout*, p. 575).

Brackets

Join together all lines or staves of the electronic part with a margin bracket (see *Score brackets and barlines*, p. 514). Even a single line or stave may take a bracket to make its position more conspicuous (see (a) below).

Choose a curly brace to join staves of like material (b), a square bracket for staves of different timbres or textures (c). Material of a particular type may be grouped with a sub-bracket (c). Normally the stave is labelled *recording/ electronic sounds/sampled sounds*, etc. However, where there is continuous use of the same timbre or texture, individual ones may be labelled in the margin, to be clear of the stave (c):

Different timbres/textures



Stave size

It is usually helpful to have cue-sized staves for pre-recorded or live-processed material, to distinguish them from the larger staves of acoustic performers. Cue-sized staves also save space in a multiple-stave score. However, staves should be full-size if detailed material would otherwise not be legible, and also where the electronic part is critical to co-ordination – i.e. when conductor or performer must synchronize precisely with it.

In a playing score (e.g. for a solo performer with electronics), assign the electronic part cue-sized staves, so that the performer's line stands out.

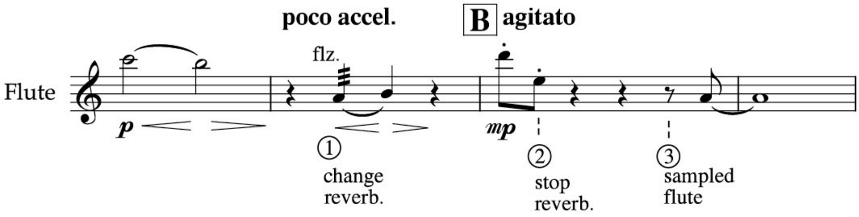
Placing operational instructions

Instructions as to where to activate a sequence, a program change or any other manoeuvre that changes equipment settings are indicated as numerals (numbering is sequential). Usually they are placed above the stave of the individual who triggers them, to be clear of dynamics. Technician-operated instructions go at the bottom of the system.

Frame each type of manoeuvre in a distinctive way so that boxed numerals (e.g. rehearsal figures, sequence numbers and program changes) can be differentiated. Diamond-shaped boxes are a useful and distinctive design (in the Harvey extract, p. 606, they are used for the program changes (see harmonizer part); circles mark CD track numbers, square boxes distinguish rehearsal letters).

FOOTPEDAL OPERATIONS

Footpedals are frequently used for making changes to equipment settings. When timing is critical, point an arrow towards the stave or align a dotted line at the relevant place to emphasize that a manoeuvre must be precise. The following example illustrates that changes to be triggered by a footpedal may be placed below the stave. This is more intuitive placing than above the stave, as long as instructions can be clear of dynamics:



(See also *Program changes* and *Continuous controllers*, p. 604.)

Dynamics for electronic sounds

Indicate dynamics for pre-recorded or live-processed sounds so that the technician can balance volume levels and so that another performer has them as a cue. State whether the balance of performer and electronic sounds should be equal, or whether the performers should be in relief.

There are three potential sources of dynamics:

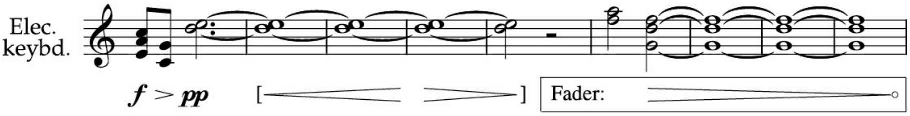
- those pre-recorded into the sound file or programmed into the software
- fader levels to be adjusted by the technician
- performers' dynamics that affect electronic transformation

When performer and technician use the same score, and dynamics emanate from more than one source, clearly distinguish the three roles.

Pre-programmed dynamics: these are required by the performer and also the technician (who needs to monitor levels), but they may be given square brackets, to indicate their descriptive role. (Since there is no established convention for this differentiation, define the significance of the square bracket in a preface.)

Fader levels: dynamics to be adjusted by a technician are best boxed, so as to be conspicuous in the score (see example below). Alternatively, or in addition, include the label 'Fader' before the dynamic. (When levels to be adjusted relate to live processing – e.g. using a harmonizer – and require detailed instructions, assign an individual line, grid or stave for such a process: see *Continuous controllers*, p. 604.)

Performer's dynamics: allocate ordinary unbracketed dynamics:



If all dynamics are to be implemented by the technician, a performance note at the outset is sufficient instruction.

Co-ordination with pre-recorded material (fixed media)

Some pieces may be barred metrically for the acoustic performer but use graphic or proportional notation to describe the electronic component. Should some co-ordination be required between the two, place barlines through the electronic staves (or grid). This provides orientation for the technician. Thus a score in which the staves for both the acoustic performers and electronics are barred implies a degree of co-ordination between the two.

Barlines may be omitted from an electronic part that does not require synchronization with the performers.

MUSIC WITHOUT BARLINES

Where the performer's part contains no barlines, indicate synchronization points by placing a vertical line between the parts. Where one part is to signal another, add an arrow to a diagonal line in order to draw attention to a cue (see *Performer signals*, p. 620; see also Harvey extract, p. 606).

When close co-ordination is required, the performer's part must specify this, e.g. by marking it *synchronize with electronics*. When co-ordination is no longer required, specify the requisite level as *independently/synchronize approximately*.

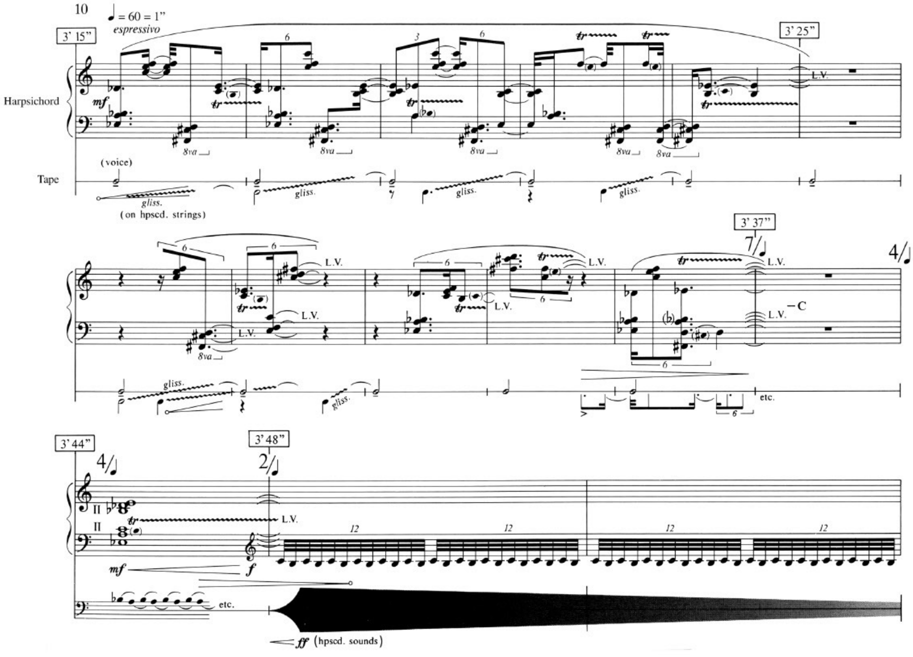
Timings for pre-recorded material

Give frequent timing points above the electronic part, especially surrounding significant events, to facilitate rehearsal. In the example of graphic illustration, p. 595, regular timings of 5" at equidistant intervals across the page make the time-space relationship easy to follow. This particular grid takes barlines to clarify the 5" sections.

For a piece consisting entirely of pre-recorded material, use cumulative timings, as the playback equipment will show these (see *Cumulative timings*, p. 638).

In a piece requiring co-ordination with an acoustic performer, use cumulative timings only if the performer co-ordinates with the recording by following a stopwatch or equivalent. In the following score, for clarity timings are given above the harpsichord part in boxes, since the player must follow a stopwatch:

Saariaho: *Jardin Secret II*



Where the performer does not use a stopwatch, indicate individual durations of events, sections or bars (see Harvey extract, p. 606; see also *Defining time-units*, p. 636).

Sampled sounds

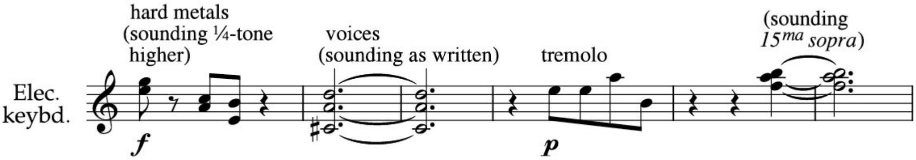
An electronic keyboard or other device, such as a footpedal, capable of transmitting MIDI information can trigger sampled sounds.

TRIGGER KEYBOARD

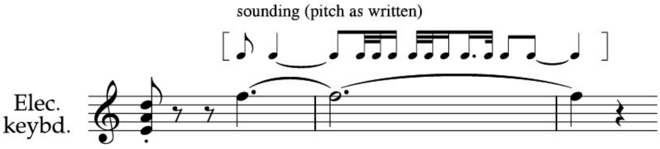
When a keyboard is used to trigger sampled sounds, notate the keys that the performer is to play, even though the sounds produced may have different pitches or no clear pitch at all. For reference it is often helpful, where practical, to indicate in the preface to a score the resultant pitches triggered by a given key in a given program and also the timbral nature of the sounds. (This helps to verify whether the files have been loaded correctly into the equipment.) While providing this information in a preface minimizes clutter in the score and instrumental part (if separate), there will be times when other performers need actual pitches of sampled notes to be given for balance or tuning purposes, or as cues.

SAMPLES AS CUES

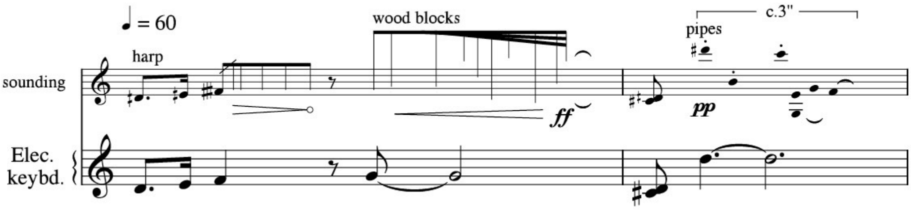
Where a performer must balance, tune to or co-ordinate with sampled pitches that do not sound as written, indicate the resultant sounds in the score. A brief verbal description of sounds is useful:



Differentiate actual sounds, e.g. frame them in square brackets; label them *actual sounds / sounding*:



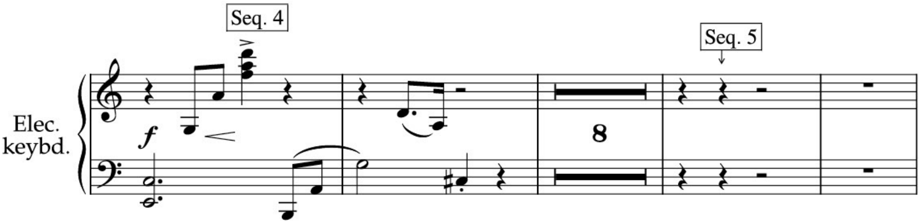
A cue stave is usually placed above the MIDI part (below a left-hand keyboard stave if necessary):



When the performer who triggers the samples has an individual part separate from the full score, it is necessary only to include either the played keys or else numbered footpedal trigger indications (see *Footpedal operations*, p. 598). Cues of sampled sounds provided in instrumental parts require only the actual sounds.

MIDI sequence

A MIDI sequence (an automated series of synthesised or sampled notes) is triggered by either a performer (e.g. with a footpedal) or a technician seated at a computer. An instruction to activate a sequence may require only a framed indication of starting point. Align it precisely where it should start – divide rests if necessary (see penultimate bar):

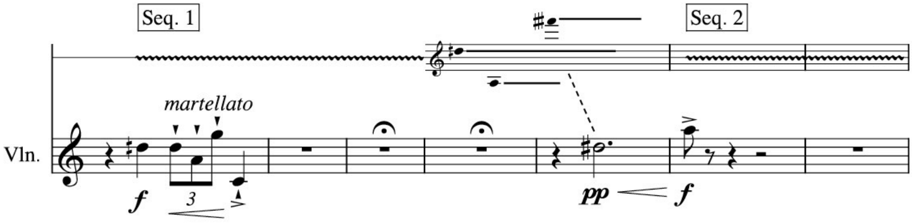


A horizontal band or wavy continuation line on an individual line or stave may be used to indicate the length of a sequence, if helpful (see example opposite).

MIDI SEQUENCE AS CUES

A cue stave showing the resultant sequence (or a section of it) can be very helpful for balance, co-ordination and tuning, and as a cue.

If the conductor or performer needs only to follow on at the end or at a particular point in the sequence, indicate only as much of the sequence as is necessary for a secure entry. Normally it is best to place the cue stave directly above the stave of the performer who has triggered it (i.e. in normal cue position), so that the conductor can see its correlation to the trigger note. In the following example, the violinist triggers the sequences with a footpedal:



Delay lines

Using digital delay procedures (formerly, tape delay) may involve scoring the delay lines to facilitate precise co-ordination and to show the harmony. Ideally, provide a full score for rehearsal and study purposes, and a separate part for the performer if page turns are otherwise impractical.

In some works it may be possible to simplify the notation of delay lines as long as essential information is present for co-ordination. In the first section of the playing score of Harvey's *Ricercare una melodia* for trumpet and tape-delay system, entries important for co-ordination are given but tied notes and some figuration omitted so as not to overload the performer with information; the four playback lines are compressed onto two staves to allow for convenient page-turns.

Notate the delay lines on cue-sized staves below the performer's staves. Where such scoring would be very complex, it may be sufficient to indicate where input (recording) and output (playback) occur. Indicate on the score:

- where to start and stop the recording, and input levels
- where to start and stop the playback, and output levels
- feedback levels (if employed)

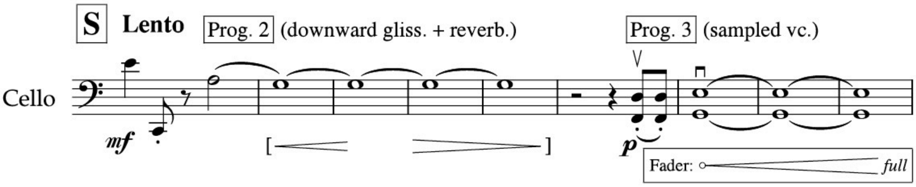
Where processing parameters (e.g. filter frequency or reverberation time) change rapidly and have to be precisely synchronized with the acoustic performers, continuous information may be essential. Allocate each process an individual line, grid or stave. In *Time and Motion Study II* for cello and live electronics, Ferneyhough uses a continuous line to represent the control of each delay line, rather than notating the resultant sound (which would provide too much complex information to be practical). A band of vertical shading above the line indicates recording level, a band of diagonal shading below the line indicates playback level, and a separate thick black line represents feedback level.

Program changes

Numerals representing configurations of software settings – program changes or patch numbers – should be clearly indicated at the point at which they occur.

In a performance score or separate instrumental part, it is helpful for rehearsal purposes to place program changes or patch numbers at the end of the previous passage and at the start of a new passage. It is also useful to add them at the top of each page.

A brief verbal description of the content of the program may be useful so that the performer knows what to expect, and so the technician can check the correct program is operating. However, keep description minimal so as not to clutter the music:

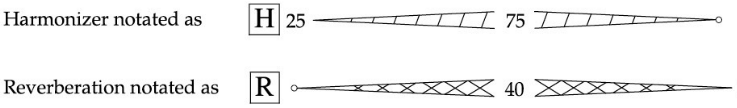


(The flute example, p. 598, also shows footpedal program changes with short verbal description.)

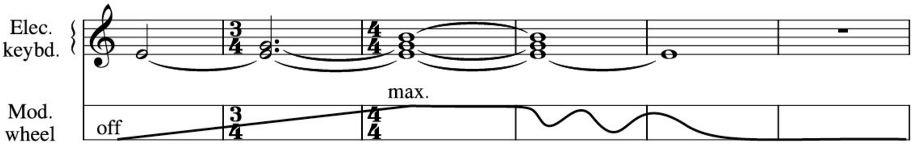
Continuous controllers

Instructions regarding controllers which vary parameters continuously – as opposed to switches which trigger events – (e.g. a modulation wheel or volume pedal) should be placed below the relevant performer's line. In a keyboard part, place instructions for a manual controller above or below the system according to the hand that manoeuvres the device (this may depend on the equipment model).

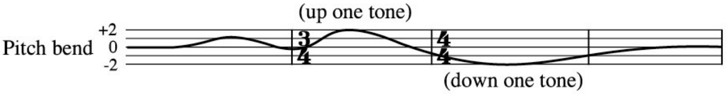
Technician-operated manoeuvres should appear at the bottom of the score. They may be indicated without an individual stave, especially if instructions are intermittent. In Saariaho's *Lichtbogen*, the following modified dynamic symbols provide clear, efficient notation for the manoeuvres of both the harmonizer (transposing input sound to harmonize with the original) and the reverberation controls. The numerals indicate the percentage of the levels to be used (the lowest level = zero):



Alternatively, where levels need to show simply minimum and maximum settings, they may be indicated with a continuous band on a single line or between a grid of two lines (as below). A continuous band on the time-space axis indicates the position of levels at a glance: this is especially helpful when starting in the middle of a section in rehearsal. (The line or grid may be omitted from score systems in passages in which levels are 'zero'.)



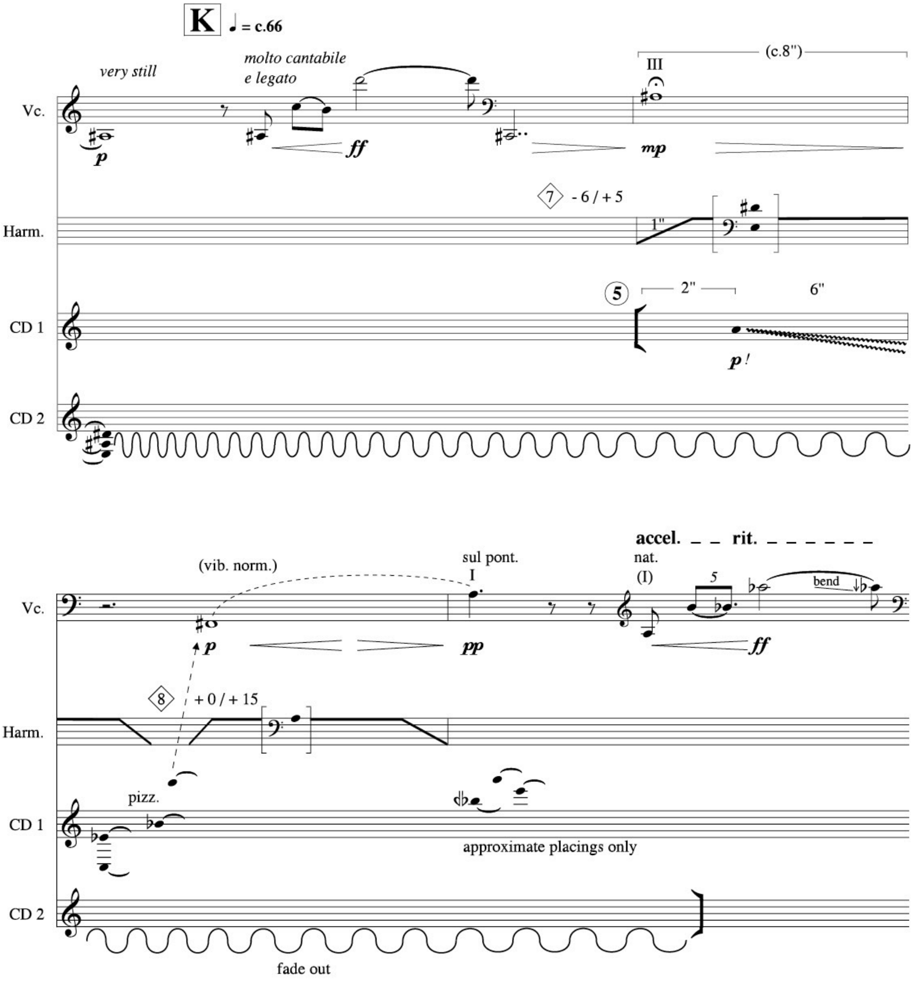
For finer distinctions, the depth of a stave may define a percentage or numerical value in line with the calibration of the equipment used. In the case of a pitch bend wheel, the middle line represents 'zero' (i.e. no transposition). At the outset of the program, either state the interval that each stave-space represents (in the following case, a semitone), or specify the intervals (+2 and -2 semitones in the example below) between the middle line ('zero') and the top (maximum) and bottom (minimum) lines (the intervals could potentially change in different programs):



Where another performer requires pitches produced by a harmonizer as a cue, it is helpful to notate the resultant sounds in addition to the numerals that represent these pitches in semitones (in the harmonizer part, p. 606, -6 = down a tritone, +5 = up a perfect fourth). The resultant pitches also enable the technician to check that the settings are correct; in addition he or she can then adjust volume levels to ensure that the notated pitches sound. Since a stave is already required for the harmonizer's resultant sounds, it can simultaneously illustrate volume control: minimum at the bottom of the stave to maximum at the top (see following example).

In Harvey's *Advaya*, the different technical procedures are set out on individual staves. This clarifies the separate operations effectively:

Harvey: *Advaya*


K
♩ = c.66
very still
molto cantabile
e legato
Vc.
p
ff
III
(c.8")
mp
7 - 6 / + 5
Harm.
1"
5
2"
6"
CD 1
p !
CD 2
(vib. norm.)
sul pont.
I
accel.
rit.
nat.
(I)
5
bend
p
pp
ff
8 + 0 / + 15
pizz.
approximate placings only
fade out

20

Freedom and Choice

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This chapter examines degrees of rhythmic independence, then looks at freedom from metrical definition (proportional or time-space notation); finally, it examines individual performer choices.

RHYTHMIC INDEPENDENCE AND SYNCHRONIZATION

Barlines and time signatures

Barlines serve a very practical purpose: music without barlines is difficult to count. Where music is of a rhythmic nature it is always better to have barlines. Barlines function to delineate manageable units of music that the performer can (generally) assimilate at a glance. Where there is to be no metrical stress, barlines may be used for orientation only, though such use should be explained in a preface (see *Introduction*, p. 151). Omit barlines only where they obscure the musical sense (see *Suitable contexts*, p. 629).

In ensemble music, barlines are essential for precise rhythmic co-ordination.

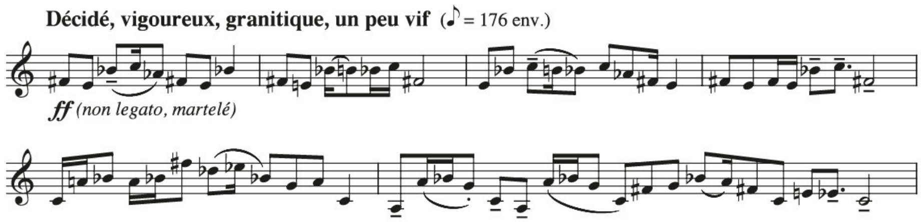
For practicality, time signatures should always be used in conducted music, even if this means that every bar requires a different time signature.

MUSIC WITHOUT TIME SIGNATURES

In unconducted music with irregular bar lengths, it is acceptable to omit time signatures that would otherwise be cumbersome to qualify, i.e. where bars are made up of groups of complex stresses:

Messiaen: *Quartet for the End of Time*

Clarinet, violin and piano in unison, cello and piano left hand one octave lower


Décidé, vigoureux, granitique, un peu vif (♪ = 176 env.)
ff (non legato, martelé)

In music without time signatures, rest bars in instrumental parts will require indication of all durations – either as a rhythm cue or else rests divided up to show true bar lengths – i.e. not single whole-bar rests (see *Alternative notation: rests tailored to the metre*, p. 160).

Cadenzas and solo ad libitum passages

Material of a soloistic nature to be performed free of metrical constraint, i.e. *ad libitum* ('at will'), may be notated in one of several ways, according to the nature of the music:

- it may be barred metrically
- dotted barlines may demarcate sections of regular or irregular length
- it may be notated without barlines

Whichever treatment a passage takes, it should state its tempo relationship to the previous bars (see note-value equivalents, example below, bars 1–2).

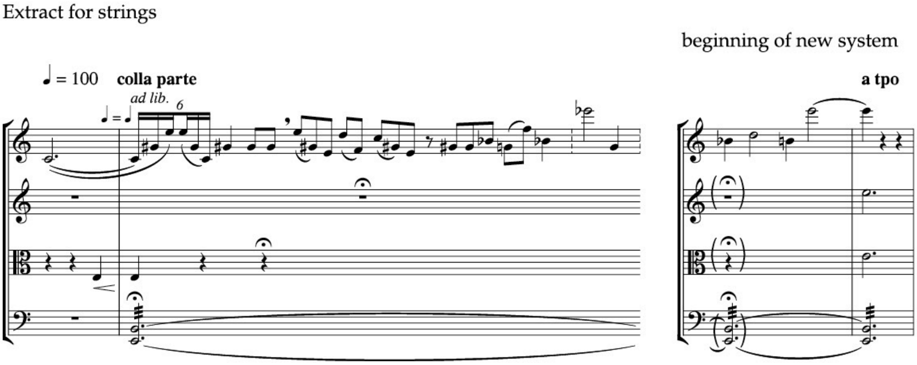
ACCOMPANYING PARTS

Instrumental parts of accompanying instruments should include an indication that they must take their lead from the solo part. This may be marked as *cadenza* or *colla parte*, or, if appropriate, *colla voce* (Italian, 'with the voice').

Where each accompanying part consists of either a single sustained note (or chord) or rests, treat each as a single bar for the duration of the free section. (Thus these parts remain unaffected by any independent barring in the solo part's material.) Assign each part a pause bar with appropriate durations to make up the notional metrical value of the bar. For convenience, the metrical value of the bar may match that of the previous metre. It is equally acceptable for accompanying parts to be treated as if they were in $\frac{4}{4}$ bars (see *Accompanying parts*, p. 611).

Where a passage spans more than one system in a score, it is helpful to restate the note-values of accompanying parts on successive systems as tied notes. Rests may also be restated. Place these restated notes and rests in brackets to indicate that in an instrumental part a single note or rest will represent them:

Extract for strings



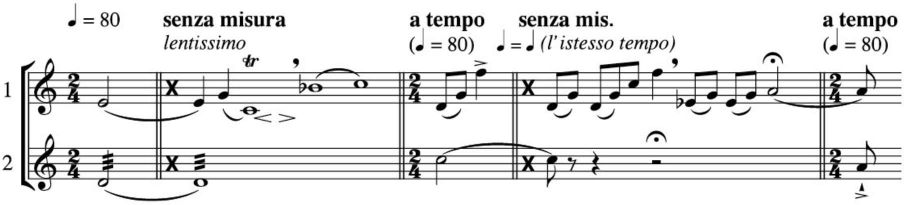
The end of a metrically free section is signalled by *a tempo* (or else by a new tempo indication). No new time signature is required, unless there is a change from a previous metre.

(For recommended use of accidentals regarding all music without barlines, see *Music without barlines and ad libitum passages*, p. 87.)

Unmeasured bars (Music without metre)

A bar or section without metre functions to allow the individual musician a degree of metrical freedom. Its roots are in dramatic recitative, where metre is subservient to the dramatic delivery of the music. Such a bar or section is labelled *senza misura* (Italian, 'without metre'). Terms such as *ad lib.*/*recitativo*/*freely*/*tempo libero* may also be used.

An 'X' placed on the stave cancels an existing time signature. Indicate whether the performer takes a new speed (see example below, bar 2) or continues at the same speed as the previous metre – *l'istesso tempo* (as in bar 4). Note that it is helpful to make an individual's tempo changes typographically different from markings that affect the whole ensemble. In the example below they are given in italic; in later examples (see Score sample 1 ff., p. 614) individual tempi have a reduced-sized conventional roman bold typeface.



ACCOMPANYING PARTS

Parts that have rests or a sustained-note accompaniment may take a convenient duration, e.g. durations equivalent to a $\frac{4}{4}$ or an $\frac{8}{4}$ bar (the example above treats the *senza misura* bars as if they were in $\frac{4}{4}$ – see bar 2 and 4; see also extract from Britten's *Paul Bunyan*, p. 622). These rests or notes do not necessarily need to take pauses, but they should do so if it is useful to convey a sense of extended duration.

A stemless note may also indicate a note of unmeasured duration (see *Placing material freely within a defined time-span*, p. 628).

BARLINES

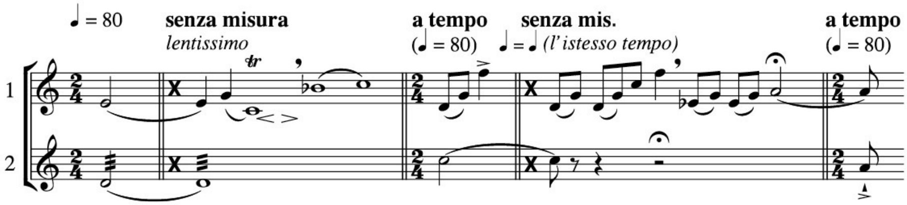
It is helpful visually to separate free and metred bars with thin double barlines.

Individual lines within a free passage may take dotted barlines to indicate independent stresses – i.e. in the same way that cadenza and *ad libitum* material does (see oboe part in Score sample 1, p. 614). It is useful to reserve solid barlines for co-ordination points (see *Section without metre*, p. 617).

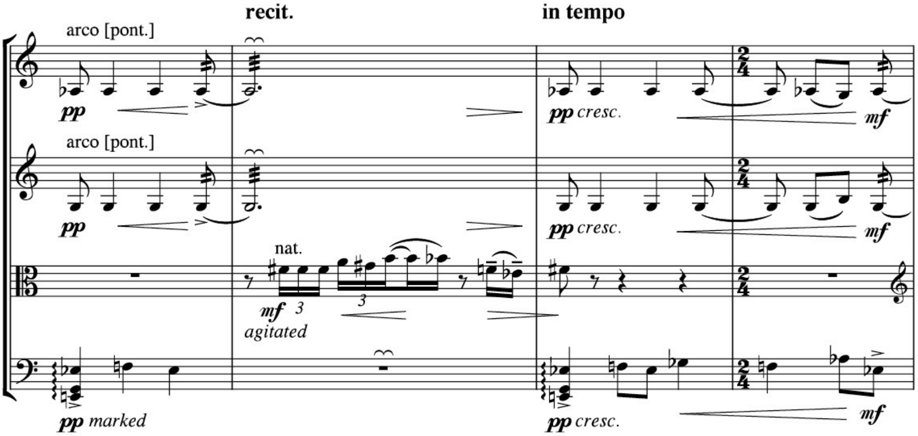
Moving on into a metre

At the end of a *senza misura* section, it is clearest to restate a time signature for a subsequent metred bar (bar 3), even where the time signature is the same as the previous metred passage (bar 1). Where the previous tempo is reinstated, confirm this with *a tempo/in tempo/misurato* ('measured') and/or with a restatement of a metronome marking (if applicable).

When a performer must wait for a co-ordination signal at the end of a *senza misura* section, insert a pause over the final duration that precedes the signal (end of bar 4):


♩ = 80
senza misura
lentissimo
a tempo
(♩ = 80)
senza mis.
♩ = ♩ (l'istesso tempo)
a tempo
(♩ = 80)
1
2
tr
X

In place of a pause, Britten's Curlew sign ⌒ is a useful device for indicating that the duration under the sign may be longer or shorter than the written one, according to when the signal comes:



Britten: String Quartet No. 3

recit.
in tempo
arco [pont.]
pp
pp cresc.
mf
arco [pont.]
pp
pp cresc.
mf
nat.
mf
3
agitated
pp marked
pp cresc.
mf

Independent parts within an ensemble

Performers who are to be rhythmically independent of one another should be marked *independently* or *own tempo*. These terms make a clearer distinction than *ad lib.* or *freely*, which might seem to refer to an ensemble rubato (unless qualified in a preliminary note – as is the case in the Lutosławski extract below).

Where more than one member of an ensemble is independent, state whether they perform independently of each other or co-ordinate as a group (see *Synchronized group*, p. 615).

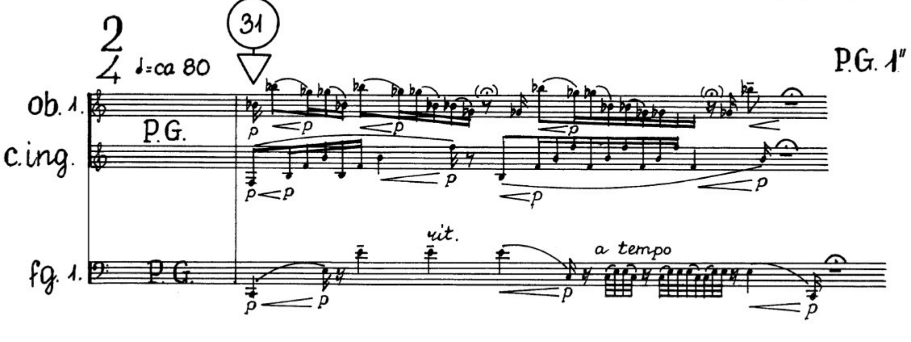
In some scores, a frame is placed around a part in independent tempo to draw attention to it. This isolating device is a visual reminder that there is no fixed rhythmic alignment with the ensemble (see, for instance, Birtwistle's *Verses for Ensembles*). However, in some circumstances a frame might be a visual distraction (the examples in this chapter reserve a frame for certain performance choices – see *Placing material freely within a defined time span*, p. 628, and *Alternatives (Choices)*, p. 643).

Alignment as if parts are in strict time

When musicians are performing at approximately the same speed, rhythmically align the parts in a score even though the rhythmic values are approximate and the sequence of notes may not precisely coincide as shown.

In the following extract the players have only a co-ordinated starting point: a downbeat from the conductor at fig. 31. Thereafter they play independently (a footnote at the initial *ad libitum* section indicates this):

Lutosławski: Symphony No. 2



(See also *Conductor signals*, p. 617.)

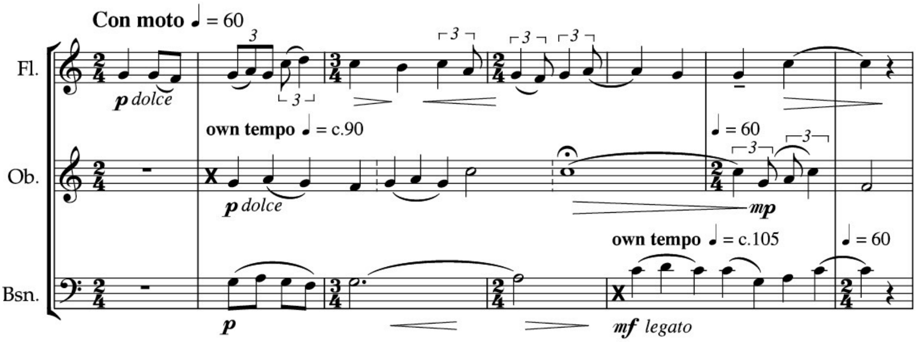
Alignment according to likely ensemble

When the tempi between parts are markedly different, it is helpful to align parts vertically relative to their different speeds, including when tempo differences are placed in the independent parts to ensure that they cannot be performed together (e.g. individual accelerando or rallentando markings).

Where a score has some independent lines, align them according to their likely ensemble with the metred parts (see oboe and bassoon parts, below).

Omit barlines through the stave of an independent part. Where it rejoins the rest of the ensemble, joined barlines indicate this visually:

Score sample 1

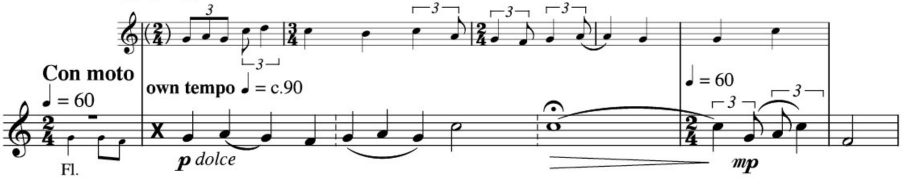

Con moto ♩ = 60
Fl.
Ob.
Bsn.
p dolce
own tempo ♩ = c.90
p dolce
p
♩ = 60
mp
own tempo ♩ = c.105
mf legato
♩ = 60
3

(See also *Parts in different tempi (Poly-tempo)*, p. 177.)

CUES IN INSTRUMENTAL PARTS

In a work without conductor, where an independent part must rejoin a metred ensemble, provide a simultaneous cue of ensemble material. The function of the cue is to indicate the precise length of the passage against which the player must place the independent line. Thus the player can rejoin the ensemble where indicated:

Oboe part extracted from Score sample 1


Fl. (♩ = 60)
Con moto
♩ = 60
Fl.
own tempo ♩ = c.90
p dolce
♩ = 60
mp
3

In an extended *senza misura* section, a written cue may be necessary only immediately before the player rejoins the ensemble, since, in practice, a cue must be largely ignored by a player concentrating on his or her own line.

(See also *Cue stave*, p. 575.)

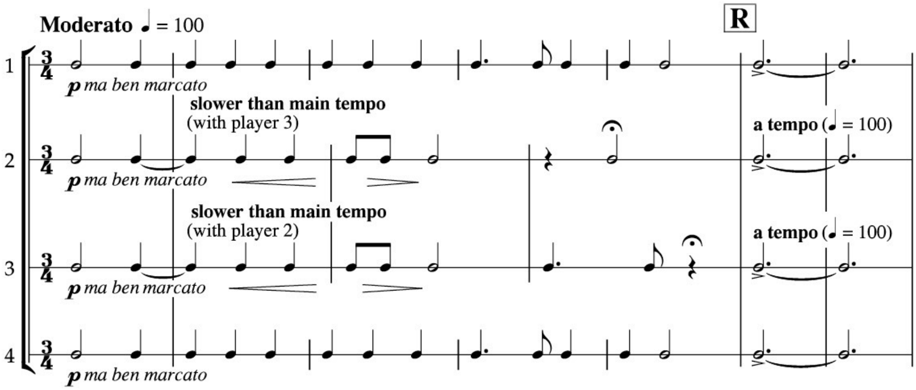
Sections with free alignment

Works or sections that are intended not to be precisely co-ordinated (e.g. in which each part has a different speed) may exist without being in score form at all. Instead the score is a document of the contents of each part, each part being laid out on separate pages, or in separate sections on the same page. (Lutosławski organized sections of his String Quartet score in this latter way, so that the players could not deliberately – mistakenly – co-ordinate free sections. The players are independent, although they play in approximately the same tempo.) Alternatively, such works may exist as a set of parts alone without a score.

Synchronized group

When two or more individuals are to perform together independently of the rest of an ensemble, give an explicit instruction to indicate where they are to do so, which performer leads (if relevant), and with whom each co-ordinates (Italian: 'col . . .') (see *Indication of prominent entries*, p. 567).

In a score, join barlines for players (but not voices) on adjacent staves who synchronize, if these staves would normally have joined barlines:



(Some of the examples in this section are set out as rhythmic outlines. Numerals are added to indicate the number of players intended.)

(See also *Synchronized repeats*, p. 626.)

CUES IN INSTRUMENTAL PARTS

Where one part is to synchronize with another, provide a simultaneous cue of the other line. A rhythm cue is usually sufficient, although a pitch cue may be added to material lacking sufficient rhythmic definition. If necessary, place vertical lines between the cue and the playing part to clarify synchronization (see Player 3's part extracted from Table 1 (c), p. 618).

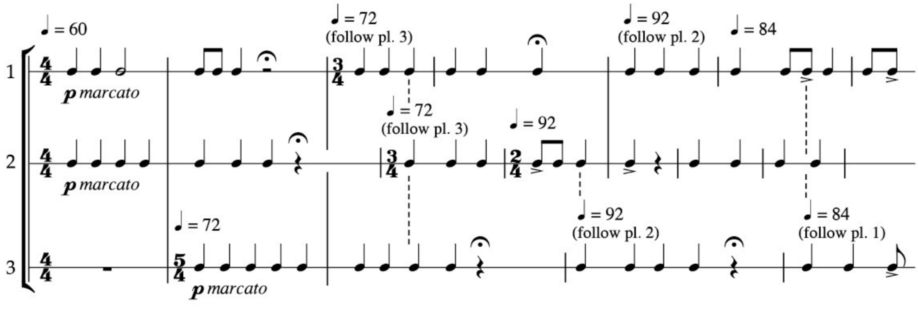
Indicating synchronization (Unmeasured bars and independent ensemble)

Parts in different tempi

It is important to show where parts should synchronize. When barlines coincide between parts, bar parts together if they would normally be joined in a score. To show rhythmic alignment elsewhere, add a vertical line between the noteheads on the different staves. Where there are few synchronization points, a line may show each instance of the coinciding parts; where one part joins the tempo of another and the two continue together, a single line at the initial co-ordination point may be sufficient, and not overload the score (see following example). A vertical dotted line creates a contrast with ordinary barlines; it should not intersect intervening staves.

The following example illustrates how a performer picks up a tempo established by another musician (the extremely rapid tempo changes have been created purely for the purposes of illustrating rhythmic alignment in a short example). Verbal instructions clarify how the performers synchronize:

Parts in different tempi



CUES IN INSTRUMENTAL PARTS

To co-ordinate music in different tempi, it is very likely that the performers will need to read from a playing score so as to see how their parts relate to the others. Where this is inappropriate or impractical, add a cue stave to each part. This may contain another line in the same tempo (so that the players can keep together). Where more appropriate, the cue may be a line in a different tempo against which the player must measure his or her own part.

Section without metre

Since an ordinary barline indicates that a conductor gives a downbeat, use a barline where the whole (or the majority) of an ensemble is to synchronize in a section without metre. In consequence such a section can be referenced by bar number or rehearsal mark (and requires no further signals to be marked).

A traditional approach to marking co-ordination points (a signal from the conductor, or from one performer to another) is to use dotted barlines. The duration of sections between dotted barlines does not necessarily represent equal duration – an instruction at the outset can state whether or not the durations are entirely free. The dotted barlines should be placed only through the staves of players who need the cues, or who count the cues before their entries: see Table 1 (a), p. 619.

This approach is particularly suited to pieces in which all performers use the same source (e.g. the full score of a small chamber work, or a vocal score of a choral work). Where a section without metre requires several consecutive signals, it is helpful to label these individually (see below).

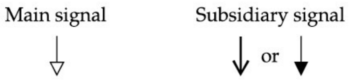
Conductor signals

An alternative to using dotted barlines is to indicate visually where the conductor gives signals.

A work may feature two types of conductor signal: a main signal for all or several performers, to indicate the start of an unmeasured or independent section; and a subsidiary signal for a few or individual performers. These two types may be distinguished in one of two ways.

One approach is to use different styles of rehearsal marks. Use an ordinary rehearsal mark for each main signal. Number subsidiary signals separately, so that they can be omitted from *tacet* parts (see *Conductor signals in instrumental parts*, p. 618). Label the main signal also as the first subsidiary signal, to avoid confusion when counting. Place signal numerals at the top of the system to be clearly visible (not merely above the stave to be signalled): see Table 1 (b) and (c), p. 619.

The other approach is to use two styles of arrow, e.g.:



Where barlines represent main signals, it is necessary to indicate only subsidiary signals with arrows (see Table 1 (b), opposite). Place the arrows at the top of the system.

For absolute clarity, both styles may be combined by attaching arrows below the rehearsal marks (as in (b) opposite; see also Lutosławski extract, p. 613).

To make it very clear which performer requires a signal, add a vertical line down the score (omitting intervening staves) as far as the relevant stave. Use a solid or dotted line, choosing whichever is most appropriate (a solid line will be very conspicuous – potentially distracting in some contexts).

Vertical lines between notes in the score indicate simultaneous entries. This shift of emphasis away from the dotted barline (as in (a)) to marking out visually simultaneous events (as in (b) and (c)) can make simultaneous events look more immediate. Where there are many co-ordination points, this may be helpful for the score reader (see Table 1, opposite).

Adding arrowheads to the vertical lines, pointing to the entries to be signalled, makes them conspicuous in a large score (see, for instance, Birtwistle, *Down by the Greenwood Side*).

In a score of large forces with many staves, vertical lines may be distracting and therefore impractical. Boulez's *Rituel: in memoriam Bruno Maderna* offers a more practical solution: numbered conductor signals with a short arrow are placed at the top of the system (in the manner of (b), opposite) and are repeated above the stave to be signalled.

CONDUCTOR SIGNALS IN INSTRUMENTAL PARTS

Conductor signals that are marked in a score should be inserted into individual instrumental parts. Subsidiary signals may be omitted for a part that is *tacet* between main signals (or barlines). (In Table 1, opposite, player 5 requires only a single whole-bar rest between rehearsal letters A and B.) Players entering between main signals (or barlines) should have all subsidiary signals marked into their parts, so that they do not to enter (or finish) early. It is helpful to specify the other performers who must be signalled prior to an entry, for the same reason (bar 1, signals 2 and 3):

Player 3's part extracted from Table 1 (c)

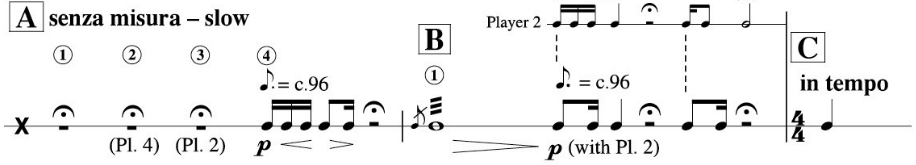
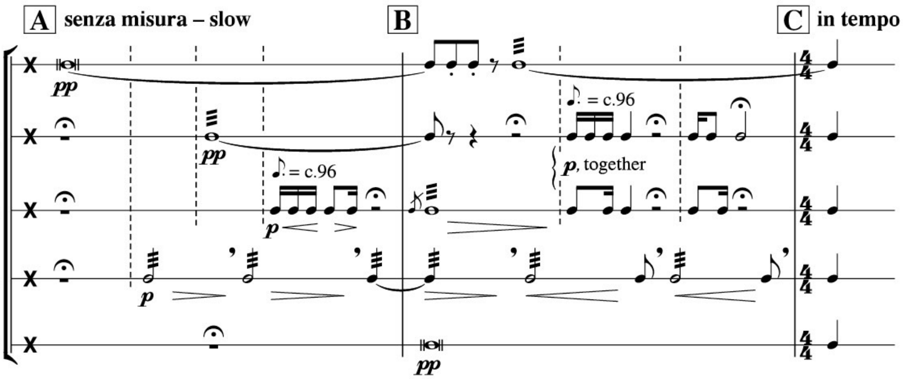
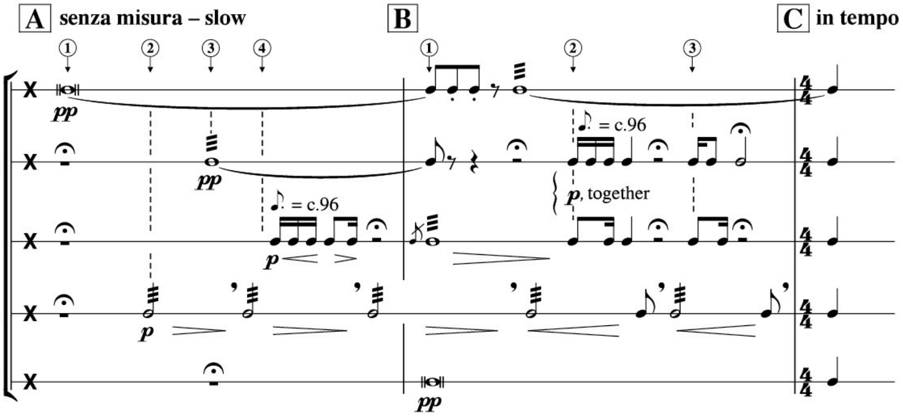


TABLE 1: Section without metre

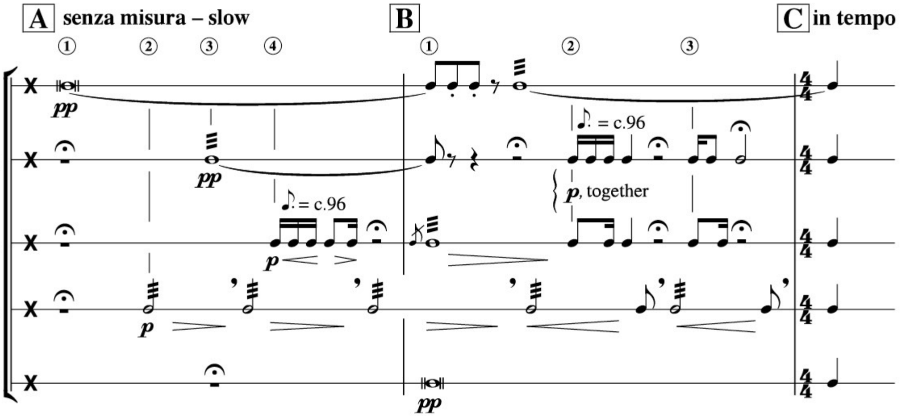
(a) Signals marked as dotted barlines


A senza misura – slow
B
C in tempo
1
2
3
4
5
pp
pp
p
p
♪. = c.96
♪. = c.96
p, together
pp

(b) Arrow signals


A senza misura – slow
B
C in tempo
①
②
③
④
①
②
③
1
2
3
4
5
pp
pp
p
p
♪. = c.96
♪. = c.96
p, together
pp

(c) Vertical-line signals


A senza misura – slow
B
C in tempo
①
②
③
④
①
②
③
1
2
3
4
5
pp
pp
p
p
♪. = c.96
♪. = c.96
p, together
pp

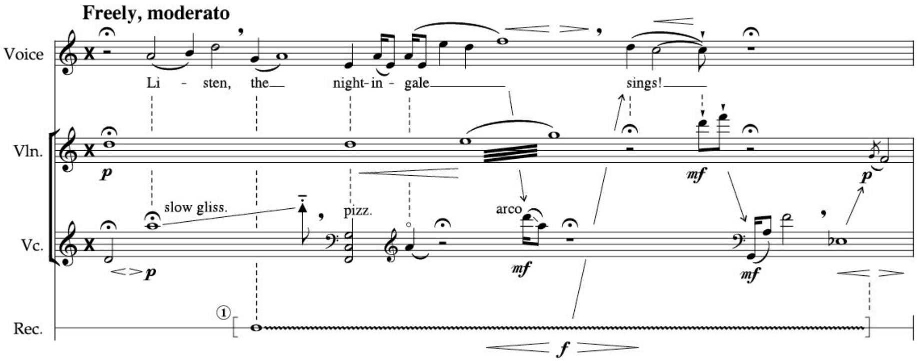
Note that marking conductor signals may be sufficient cue without additional pitch or rhythm cues.

Performer signals

Place a diagonal line between staves to indicate a signal from one performer to another, or to and from a cue of electronic sounds. It is helpful to attach an arrow to the diagonal line, pointing towards the stave of the performer to be signalled.

Where synchronization points need to be indicated as well, use vertical lines: a vertical line always indicates simultaneous events. Use contrasting designs of vertical and diagonal lines: either have solid lines for signals and dotted lines for synchronization (as below), or vice versa.

Score sample 2



(The cello part is shown opposite.)

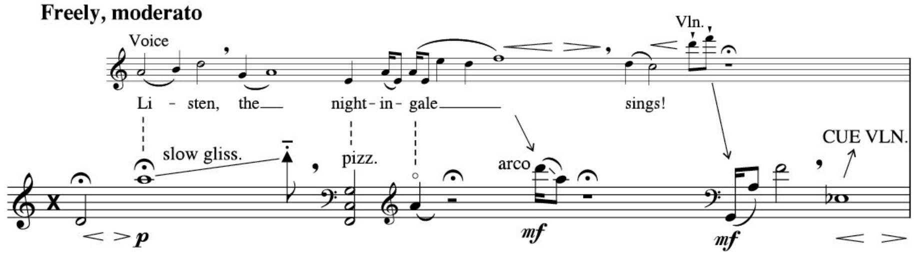
PERFORMER SIGNALS IN INSTRUMENTAL PARTS

It is essential to indicate where one performer is giving a signal to another, as well as to indicate where to follow a signal. Note the following guidelines:

- Where one performer signals another, an arrow points away from this stave
- Where a performer receives a signal, an arrow points towards this stave
- Where a player must co-ordinate with a succession of entries, each entry must be written in as a cue

The following example highlights the comprehensive cueing that may be required to synchronize parts in unmeasured bars of unconducted music. The more cue information provided, the more precise the co-ordination can be:

Cello part extracted from Score sample 2

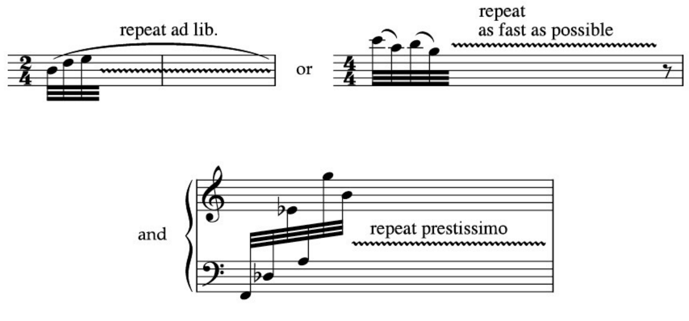

Freely, moderato
Voice
Vln.
Li - sten, the night - in - gale sings!
slow gliss.
pizz.
arco
CUE VLN.
p
mf
mf

(Lutosławski's String Quartet is a good example to follow: thorough cueing and verbal instructions indicate where the parts must co-ordinate, where each player gives a signal or waits for a signal. There are no cues or signals where the instrumentalists play their own parts independently and must ignore the others.)

Independent repetition

Independent repetition should be notated in a different way from conventional repeats. Material of a whole beat, whole bar or two-bars' length in which rhythms are to be repeated in strict time and in the prevailing metre should be notated either in full or using the 𝄎 repeat-bar sign. Setting out each bar in this way shows that repeats are to be performed conventionally, and are not to be rhythmically independent in any way (see *Repeat-beat and repeat-bar abbreviation*, p. 230; for instrumental parts, see *Repeated bars*, p. 578).

Individual figures of regular, fast notes to be repeated freely may be written as beamed groups (open-ended groups convey a sense of continuity) and followed by a wavy (trill) line for the required duration. Place the wavy line after the pitches, either on the middle stave line (mid-system for a double-stemmed group) or at the level of the pitches – whichever position is most conspicuous. Add an instruction such as *repeat ad lib.* above the wavy line at its first appearance:

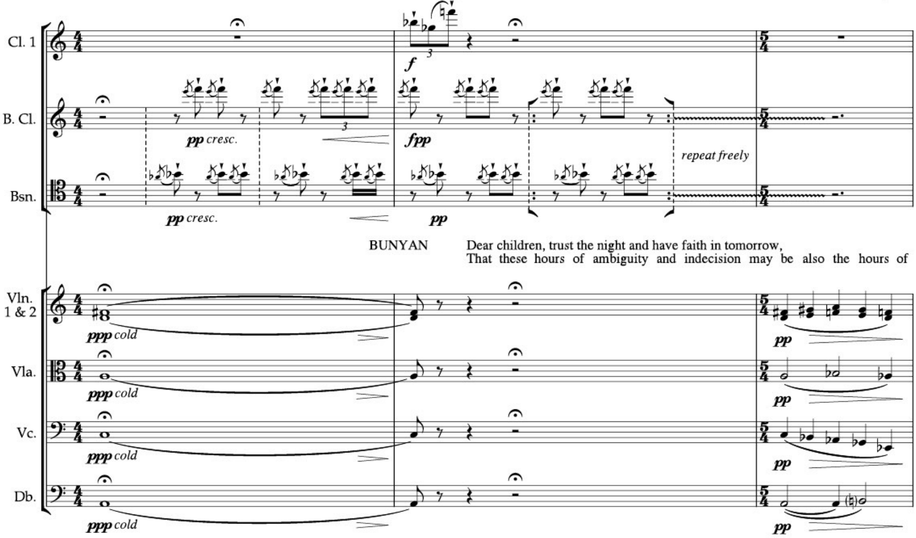

repeat ad lib.
or
repeat
as fast as possible
and
repeat prestissimo

Independent-repetition signs

Repeat barlines may be used where individual parts repeat at their own speed. Suitable circumstances are:

- repetition with an individual tempo
- free repetition within a given tempo, or with individual tempo changes (e.g. accelerandi and rallentandi) so as deliberately to be independent of other performers
- extending material for an unspecified duration, according to the requirements of a dramatic situation (this is the origin of this device):

Britten: *Paul Bunyan*


Cl. 1
B. Cl.
Bsn.
Vln. 1 & 2
Vla.
Vc.
Db.
pp cresc.
fpp
f
3
repeat freely
pp
BUNYAN
Dear children, trust the night and have faith in tomorrow,
That these hours of ambiguity and indecision may be also the hours of
ppp cold
pp

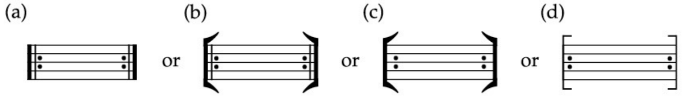
(Violin lines amalgamated for practical purposes.)

A verbal instruction should clarify the manner of repetition, for instance, either *repeat in strict time*, or *repeat independently* (see *Instructions for repetition*, p. 624).

Passages of individual repetition may have their own time signatures (see *Score layout with independent repetition*, p. 626). If a repeat of material with an individual time signature is to be in strict time, creating a cross rhythm, it should be notated to show its relationship with the other parts (see *Repetition in independent metre or tempo*, p. 577).

DESIGN

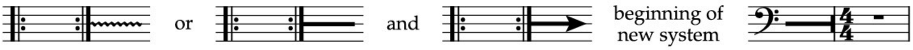
Material to be repeated should be enclosed with repeat barlines (a) or brackets ((b) – (d)). Curved end notches differentiate independent-repetition signs from ordinary repeats and make them more conspicuous ((b) – (d)). Where it is important to show that repeats do not coincide with metrical barlines, use a single bracket design, as it is then easier to see the position of ordinary barlines ((c) and (d)). (The dotted brackets in the Britten extract opposite are even more helpful for this purpose.)



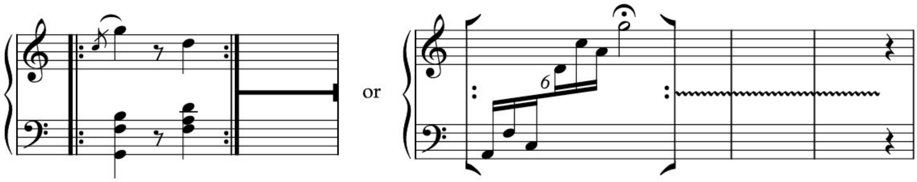
The repeat barlines or brackets are followed by a continuation line centred on the middle stave-line. The continuation line often functions to indicate that the number of repeats is not predetermined.

Although a wavy line is most commonly used, a second design consisting of a straight line may be used as well and the two designs assigned different performance instructions (see *Moving on after repetition*, p. 625). A trill line may be used to create a wavy line, and a straight line should be of beam thickness, so as to be conspicuous on the stave.

An arrow at the end of the continuation line is useful to indicate where repetition carries onto a following system; an end notch is helpful to clarify the cut-off point of a straight line:



In a braced part, the repeat barlines or brackets join the staves together. Centre the continuation line mid-system:



(For use of the octave extension line with independent repetition, see *Length of the extension line*, p. 30.)

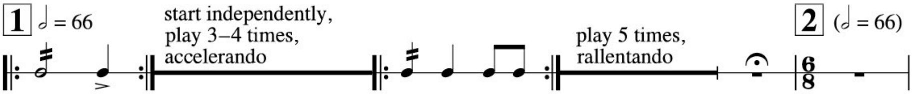
Instructions for repetition

Place instructions above each continuation line initially, to specify:

- whether the individuals of an instrumental section (e.g. 1st violins) or choir voice part starts the repetition together, or independently
- whether material is to be repeated independently of the conductor or the ensemble, or together with other (specified) performers
- whether material is to be repeated in the prevailing tempo or at a different tempo or should vary in speed
- whether sections (or bars) of the repetition should be performed with progressively longer, shorter or variable-length breaks in between

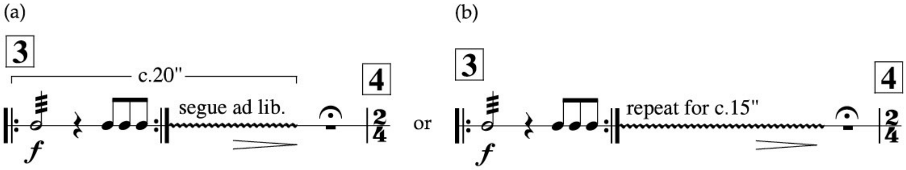
DURATION OF REPETITION

An instruction to perform material a given number of times is best written as *play* (or *sing*) *four times*, and not × *3* or *repeat 3 times*. The latter is confusing since the performer counts the first statement as '1':



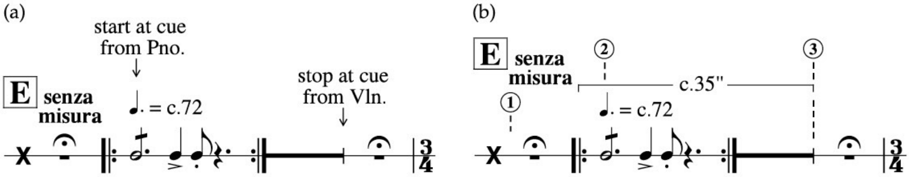
(See also *Multiple-repeat sections*, p. 579.)

To repeat material for a given duration, indicate the timing above the independent-repetition section, making sure that the extension line is included in the timing (a). If duration is given only for the repetition, wording must clarify that the duration does not include the initial statement (b):



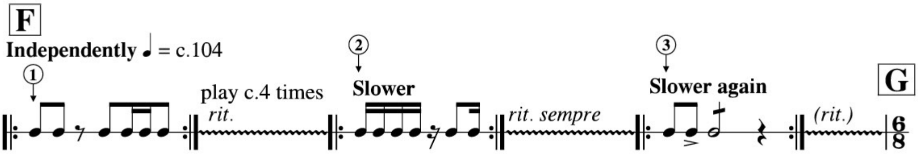
Where a signal from another musician determines the length of repetition, duration may be less significant information – although it is often helpful to give an approximation (unless it is too variable to be of any use). To repeat until a signal, give an explicit instruction such as 'repeat until signal from . . . , then stop/move on'. It is helpful to place an arrow where the signal is given and to label the musician who gives it (see following example (a)). A rehearsal mark or signal numeral indicates a conductor's signal. Vertical dotted lines may replace arrowed signals to show exactly where the cue comes – useful if rehearsal marks are some distance above the stave (b):

Cues from other performers


(a) (b)

E senza misura
start at cue from Pno.
♩. = c.72
stop at cue from Vln.
3/4
E senza misura
①
②
③
c.35"
♩. = c.72
3/4

To move on from one repeat to another without a break, join the continuation line to the following repeat barline or bracket:

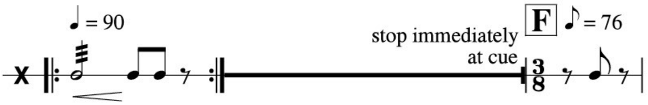

F
Independently ♩ = c.104
①
play c.4 times
rit.
②
Slower
rit. sempre
③
Slower again
(rit.)
G
6/8

MOVING ON AFTER REPETITION

In both score and part, give an instruction as to how the performer will move on from the repetition. Place this information in a preface, a footnote or immediately above the stave. Two commonly used options are as follows. One option is:

At the signal, move on / stop immediately without completing the repeated material.

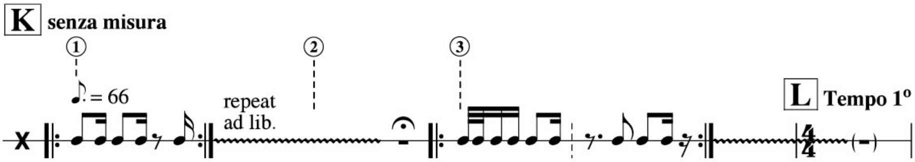
The continuation line should stop precisely at the signal or barline. The signal in this example is that given for the $\frac{3}{8}$ bar by the conductor (or leader in an unconducted piece):


♩ = 90
stop immediately at cue
F ♪ = 76
3/8

The other option is:

At the signal, move on / stop after completing the whole repeat / a section of the repeat up to a dotted / solid barline.

To reflect the instruction, the continuation line should run slightly after the signal or barline:

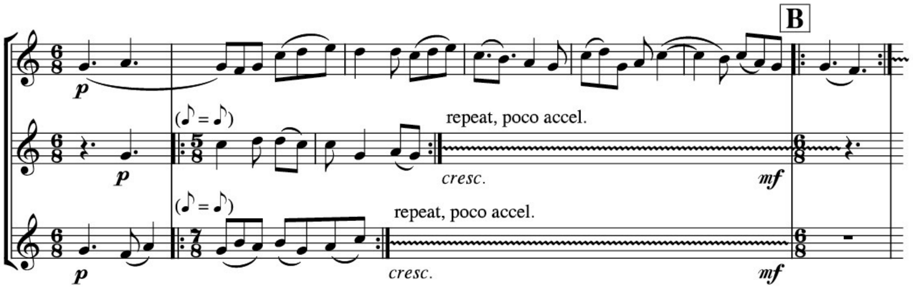

K senza misura
①
♪. = 66
repeat ad lib.
②
③
L Tempo 1º
4/4

Where a piece requires more than one option, use different designs of continuation line, to save repeating instructions. The distinct uses in the examples on p. 625 reflect, for instance, the definitions usually assigned to them in the scores of Lutosławski:

〰〰〰 at the signal, finish the repeat section and then go on / stop
——┤ at the signal, go on immediately / stop immediately

Score layout with independent repetition

Material to be repeated in the same tempo as other parts (either with metred parts or those with independent repetition) should align rhythmically with them, whether or not ensemble is to be precisely synchronized. Allow extra space in the alignment of metred parts for the repeat barlines or brackets in other parts and, if used, individual time signatures within the repeated sections:



Each performer with independent repetition takes separate barlines. This is in contrast to cases in which performers synchronize repeats (see below).

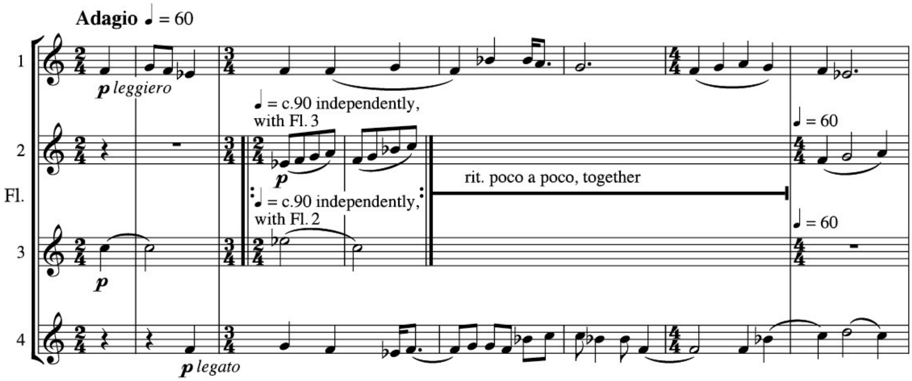
Where individual repetitions have markedly different tempi, place notes according to their likely ensemble with other parts (see following example). (This notation follows the same principle as aligning independent parts in a score – see *Alignment according to likely ensemble*, p. 614.)

Where a passage of individual repetition has its own time signature, place this inside the repeated section. A time signature that applies to the whole ensemble goes before the repeat barlines. Include it even where it is not relevant to the independent repetition (see placing of $\frac{3}{4}$ for players 2 and 3 in the example opposite), since it should be transferred to an instrumental part: a player must know that a change of time signature occurs at this point.

SYNCHRONIZED REPEATS

Where performers with independent repetition are to synchronize amongst themselves, vertically align their parts in the score. Extend the repeat barlines or brackets to the staves of adjacent performers who are to synchronize and use a single pair of repeat dots and a single continuation line. (Keep the barlines or brackets of braced parts separate, for the sake of clarity.)

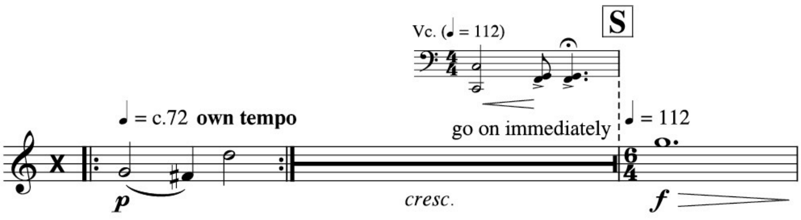
State with whom each performer co-ordinates, which performer leads (if relevant), and that they play together, independently of the ensemble:


Adagio ♩ = 60
1
p leggiero
♩ = c.90 independently, with Fl. 3
2
p
Fl.
rit. poco a poco, together
♩ = c.90 independently, with Fl. 2
♩ = 60
♩ = 60
3
p
4
p legato

(This is the same alignment principle as where two or more performers with independent rhythms synchronize – see *Synchronized group*, p. 615.)

Cues in instrumental parts

A player who is to rejoin an ensemble may require a cue immediately beforehand (as at rehearsal letter S, below). In unconducted music, it may be necessary to cue another part for the entire length of the player's repetition so that he or she can measure its duration. Cueing principles are the same as when a player without metre rejoins a metred ensemble (see *Cues in instrumental parts*, p. 614).


Vc. (♩ = 112)
S
♩ = c.72 own tempo
go on immediately
♩ = 112
p
cresc.
f

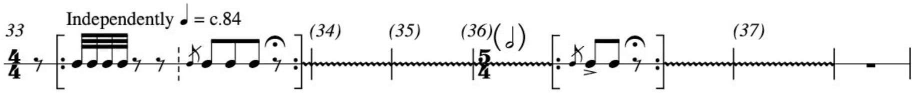
The nature of independent repetition is that the performer must ignore the prevailing metre in order to establish a different one. Therefore, where the player can rely on a signal to start or finish, it may be sufficient to indicate this alone (see example *Cues from other performers*, p. 625).

CUEING THE METRED ENSEMBLE'S BARLINES

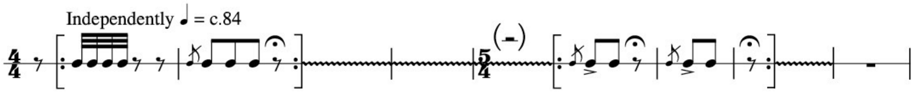
Where some or the rest of the ensemble is metred, it may be useful to indicate where the ensemble barlines occur, to show the duration of the passage. Where it is not confusing to do so, include the ensemble's barlines on the player's stave: for this to be practicable, the repetition section must be shorter than, or the same length as, an ensemble bar. It is essential to indicate whether the repeat barlines or brackets coincide with the ensemble barlines or not. (In the example below the closing repeat bracket is placed just within the confines of the ordinary barline so that both can be shown.) Place bar numbers above each ensemble bar to clarify the barring, if necessary.

Where the ensemble's barlines are shown on the same stave, do not give the independent repetition solid barlines as well: use dotted barlines if necessary.

Where the performer must move on after a specified portion of a metred bar, define the duration of the continuation line in relation to the metre. Place a note-value above the stave – but not a rest (see bar 36):



and not



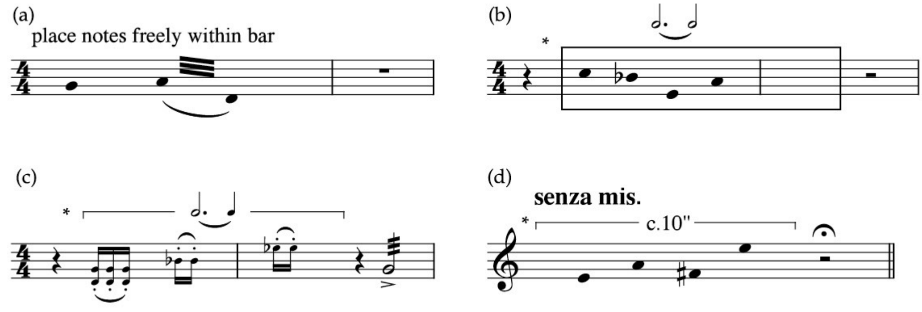
Where the independent-repetition section is longer than an ensemble bar, it is too confusing to indicate ensemble barlines on the same stave. Instead, assign a cue line or stave to show the barlines. (The layout is the same as in *Repetition in independent metre or tempo* – see p. 577.)

Where specified elements within repetition – a range of pitches, rhythms, dynamics and/or performance styles – are to be freely ordered, distinguish this style of repetition by using heavy frames or boxes for such elements (see *Alternatives (Choices)*, p. 643).

Placing material freely within a defined time-span

It is simplest to write notes of free duration as stemless black notes (but see also *Notation options*, p. 631).

There are three layout options in metred music. If the time-span is a single bar, then the barline alone can define this duration. An instruction above the stave may clarify this (a). For other than a single bar, define the time-span by centring a frame or heavy square bracket on the stave. Expand the frame's dimensions to reflect the time-span (b) (the first example on p. 644 uses square brackets instead). Alternatively, place a bracket above the stave ((c) and (d)). Should the time-span need to be clarified, indicate note-values above the stave ((b) and (c)). In a *senza misura* bar, define duration in seconds (d):



* place notes freely within time-span

If pitches may be played in any order, a further instruction is required (see *Alternatives (Choices): Layout principles*, p. 644).

PROPORTIONAL SPACING (TIME–SPACE NOTATION)

The principle of proportional spacing is that a given measurement on the horizontal axis represents a particular time-span. Notes are placed on this axis according to where they should sound within the defined duration (this is usually given in seconds: see *Defining time-units*, p. 636). Proportional spacing indicates time intervals without relation to pulse, since it has no reference to metre or conventional note-values.

Suitable contexts

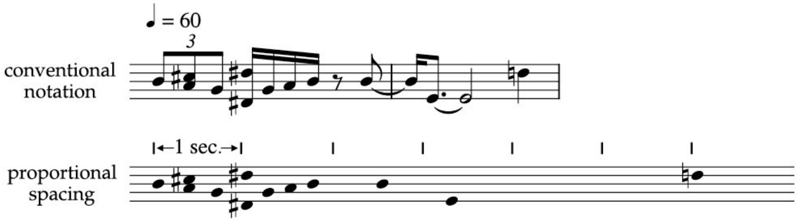
Where rhythmic precision is unnecessary or inappropriate, proportional spacing can indicate greater rhythmic flexibility than might otherwise be possible. It can convey a rhythmic simplicity that may be obscured by complex notation if expressed within a metrical time-frame. It is ideal notation for indicating a graduated accelerando and ritardando. In such conditions it can be simpler to read and to notate than complex metrical patterns.

Proportional spacing is often suitable for the notation of electronic sounds (see *Proportional spacing*, p. 594). However, for performance purposes, there are some practical disadvantages. Firstly, isolated notes that are not grouped into conventional beamed units (normally, beats) are very hard to read. Likewise, the absence of barlines is unhelpful since barlines delineate manageable portions of music to read at a glance. Secondly, it is harder to sense a measurement of time by reading distances on a page than it is to count a conventional pulse. Furthermore, the focus on pitch may encourage the performer to produce a 'notey' rather than a 'fluent' response. (In some contexts conventional notation with *rubato* instructions may elicit a more musically phrased response with the required rhythmic flexibility.)

Spacing durations

Black noteheads spaced in proportion to each other on the time-space axis replace conventional symbols for duration – note-values, ties and rests. As can be seen from the following example, the less cluttered appearance of the music does not necessarily make it easier to read:

Temporal equivalents



The fastest notes dictate the minimum measurement a time-unit requires. These fast notes must not only fit into the required measurement, or a proportion of it, but must be spaced equally if they are to be performed evenly (consideration should be given to the fact that any symbols preceding a note – e.g. accidentals – will force notes apart). Proportional spacing cannot automatically be condensed for practical purposes, as in conventional metric notation – where one duration need be only marginally longer or shorter than surrounding notes to signify different duration. Thus it may be uneconomical of space, in turn causing page-turn problems. To this end, conventional grace-note groups – to indicate playing a group as fast as possible – may be retained, since they occupy less space than a full-size note (see Table 2, opposite). (For other practical solutions, see *Variable time–space proportion*, p. 638.)

For recommended use of accidentals, see *Music without barlines and ad libitum passages*, p. 87.

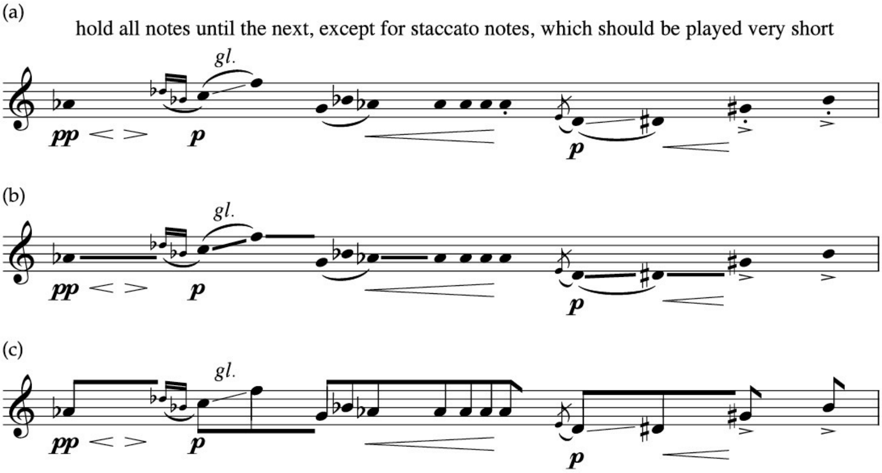
Notation options

Stemless notes

A stemless notehead placed on the time–space axis is held (on a sustaining instrument or voice) or, otherwise, allowed to decay until the next note, barline or other marker, signal, or comma (to represent a rest) – according to the prescribed performance instruction.

Slurs indicate legato performance, as in conventional notation. Very short notes can be indicated with staccato marks (a):

Table 2: Proportional spacing notation options



hold all notes until the next, except for staccato notes, which should be played very short

An open tie may indicate that a note is to ring on (*laissez vibrer*), e.g. after the next notes are sounded (see *Electronic Interlude*, p. 594). This notation does not otherwise have the capacity to indicate continuing sound (see *Laissez vibrer*, p. 72).

Stemless notes are efficient notation if the priority is to show the point of attack (the options with extended beams ((b) and (c) above) are required for indicating duration visually). Thus stemless notes are appropriate for notating struck and plucked sounds (e.g. piano, percussion and guitar). They are also useful for notating sounds written as a cue, where indicating the entries is important but notating the duration of sustained sounds might clutter a cue with too much information (see *Electronic Interlude*, p. 594).

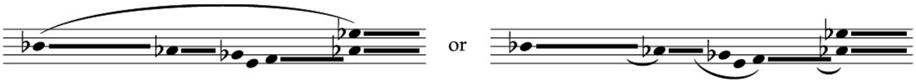
Options to show sustained sounds

To indicate simultaneous sustained notes of different lengths, and to show the proportion of rest in relation to sustained sound, extend beams from notes in one of the following ways. Blank space between beams represents the proportion of rest. Either of the notation styles below may be used – the context and style of the music dictates which is more appropriate.

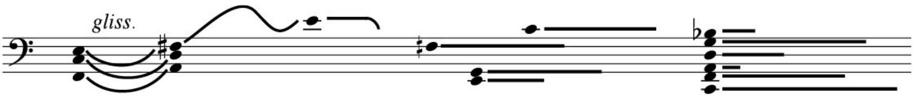
EXTENDERS AT NOTEHEAD LEVEL

A horizontal line of beam thickness (or slightly thinner, if more practical) follows each note. The line may be placed immediately after the notehead, or may emanate directly from it: see example below; also, Table 2 (b), p. 631.

Use a phrase mark to show legato, since an extender must stop short of a subsequent note in close intervallic proximity – earlier if that note has an accidental. A conventional slur shows the length of a phrase at a glance, although a short slur between the end of an extender and the following note may be used so as not to create too many layers of long lines:



The extenders convey the requirement to sustain a sound. This is useful, for instance to show where keys are to be held manually, such as on an organ or electronic keyboard. This immediacy also makes the notation well suited to glissandos and to the notation of chords comprising notes of different duration:



However, in chordal writing, this notation should probably be used only where it is a priority to illustrate the duration of sustained notes, since the extenders add a dense layer of lines to the stave, potentially obscuring both stave lines and subsequent pitches (see *Options for close-position intervals*, p. 633).

STEMMED EXTENDED BEAMS

The beam of a stemmed note (or chord) extends horizontally to indicate duration. (The beam is usually without slope so as not to distract the eye from the horizontal.) Consecutive notes join to the same beam to indicate a legato. Short notes may have short diagonal beams (simplified quaver tails) if horizontal beams would otherwise be too short to read clearly. Stems join the notes of chords in a conventional way (see *Comparative example of sustained-note notation*, below); individual stems and beams show overlapping durations where necessary (see *Part-writing*, p. 634).

This style looks more conventional than extenders at notehead level and the stave is less cluttered; therefore it is easier to assimilate. In addition, beamed groups convey a sense of rhythmic fluency – partly because they are much easier to read than isolated notes: see Table 2 (c), p. 631.

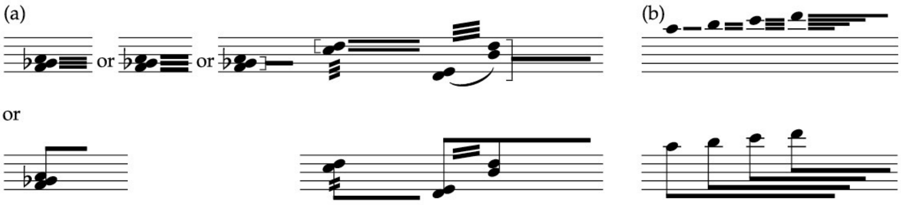
However, a string of quaver-like notes may look very similar to a line of even quavers, and so there is a danger that the notes will be interpreted in this way. (Berio re-notated *Sequenza I* in conventional note-values so that the player would be forced to play the notated irregular durations.)

OPTIONS FOR CLOSE-POSITION INTERVALS

Stemmed beams are often the best notation for close-position chords and also for sustained durations that overlap. The following comparative example illustrates why this is so.

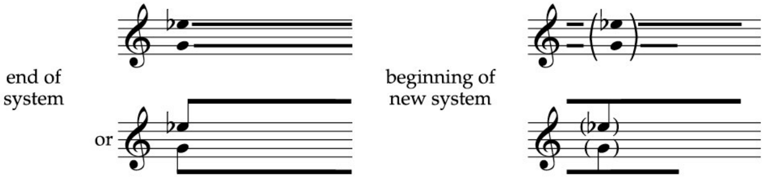
Positioning extenders at notehead level requires special treatment so that they do not run into one another. They may be made thinner or moved further apart (if practical), or a bracket may be placed after the notes with an extender attached to it (a); beams for sustained parts must be divided for subsequent pitch entries, so as not to obscure them – this compromise is not very satisfactory, as it suggests a break in sound (b):

Comparative example of sustained-note notation



OVER A SYSTEM BREAK

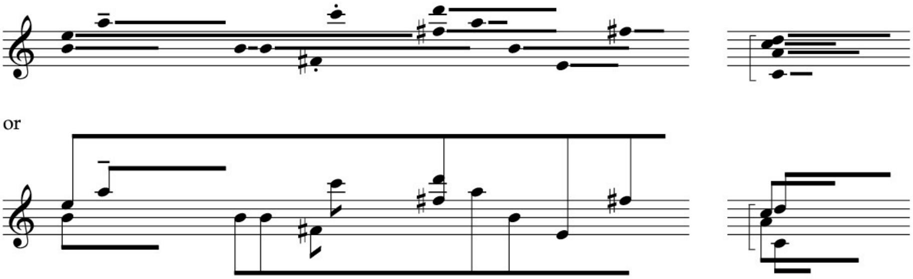
Notes may be reiterated in brackets as a reminder. Place extenders before each note on the new system to indicate continuity:



PART-WRITING

Stemmed beams have the capacity to show two (or more) parts on a single stave as well as multiple overlapping parts. Where it is unnecessary to show part-writing, it may be simpler to use extenders at notehead level.

For both styles of notation, indicate whether chords containing adjacent notes should sound simultaneously, since all notes cannot take precise vertical alignment. Place a vertical bracket before a chord to indicate simultaneous sounds:



Score layout

As in conventional score layout, proportional spacing should follow the principle of vertical alignment of simultaneous sounds. Place proportionally spaced parts in vertical alignment with each other and with any simultaneous metred parts.

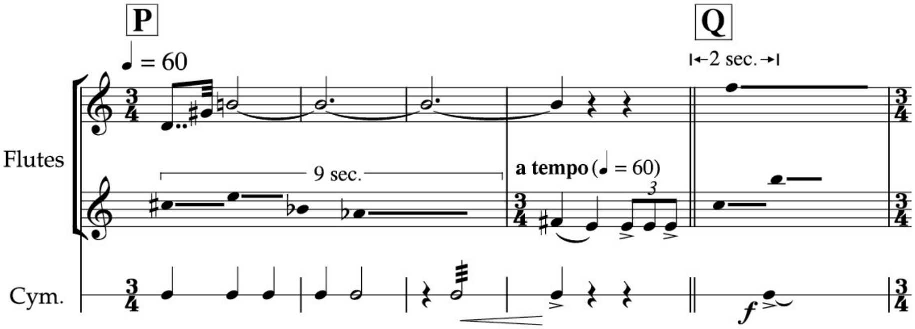
In a score that combines both forms of notation, barlines may be omitted through the staves of proportionally spaced parts (see example opposite, letter P). These layout principles are the same as those used for combining *ad libitum* and metred parts (see *Alignment according to likely ensemble*, p. 614).

Where barlines are omitted from the score, any extracted instrumental parts should likewise appear without barlines: the parts will require a simultaneous cue of the metred ensemble against which to measure duration (see *Cues in instrumental parts*, p. 614).

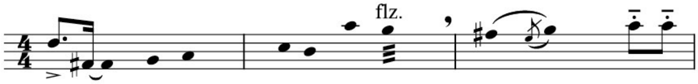
In some cases it is beneficial for corresponding instrumental parts to have metred barlines so that players can pace their parts accordingly (see examples under *Within single metred bars*, below).

ALTERNATING TIME–SPACE AND METRIC NOTATION

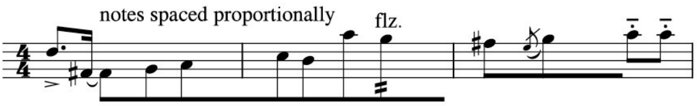
The unconventional look of proportional spacing makes such a section so obviously different in appearance from metred music that it is not always necessary to add further indications. However, a thin double barline or co-ordination signal (if appropriate) is useful for alerting the reader to the start of a section using proportional spacing, as at letter Q, below. Where proportional spacing appears in just one player's part, define the time-span above the individual's stave (bar 1):



Within single metred bars: it is feasible to alternate the two forms of notation if the style differentiates them clearly (the use of barlines continues to indicate duration):

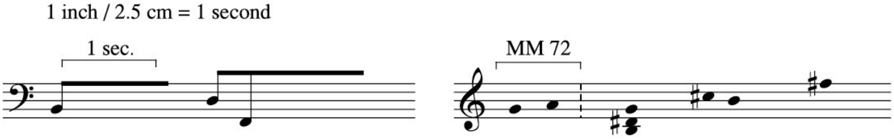


If proportionally spaced durations have stemmed beams, then the different styles may be less apparent, and should be clarified with an explicit instruction:



Defining time-units

A consistent ratio between horizontal space and duration requires a definition at the outset of the relevant section. A statement of only an initial time-unit may be sufficient. Place this indication above the stave, either as duration in seconds or as a metronome measurement. A verbal definition (such as that given below for the first example) is a useful addition:



Indicating solely an initial time-unit (i.e. with no subsequent duration markers) gives the performer a considerable degree of freedom, which might be suitable for a solo piece or in cases in which the musicians are seldom required to synchronize. Where speeds should not be too flexible or where some degree of co-ordination is required, indicate duration markers at regular or irregular intervals. The options are given below.

Duration markers

In scores using proportional spacing, barlines may continue to define time-units, provided a given duration is indicated for each bar length. However, a different style of duration marker emphasizes a non-metrical section in an otherwise metred piece.

The measurement of space between two markers defines the time-span: the marker should fall exactly at the beginning of the time-unit. This is a more literal use of the horizontal time-space axis than in conventional notation: a note to be played at the start of a time-unit should coincide with the marker. A symbol that precedes the note (e.g. an accidental) goes before the marker (see Table 3 (a)–(c), opposite).

When choosing the style of the duration marker, consider its function. Where there is a significant degree of freedom, short vertical lines above the stave are the most appropriate option, because they do not interrupt the flow of music on the stave; neither do they coincide with or obscure the note ((a) and (b) opposite). (Short markers placed at the top of the stave are best avoided, as they look too similar to pitches.)

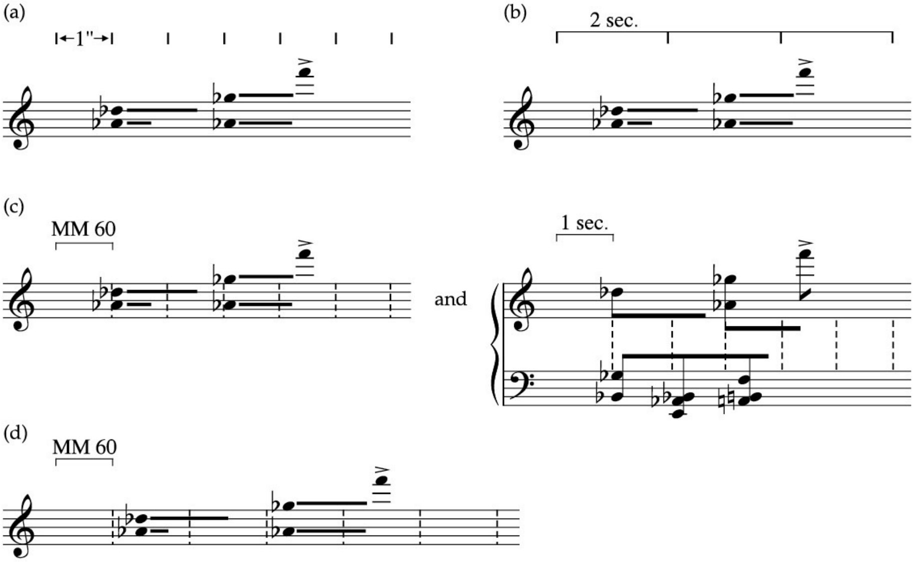
Where markers represent signals from the conductor or another performer, place them close to the stave (not some way above it) or on the stave itself (in which case dotted barlines should be used). Markers must be easy to follow while the performer reads his or her own line. Where vertical space is limited, dotted barlines in the stave (or between the staves of a braced part) will save space ((c) below).

To avoid a collision of notes and dotted barlines (as in (c)), another option is to place notes (together with their preceding symbols, such as accidentals) immediately after dotted barlines. A performance note should state that such notes start at the beginning of the time-unit (Table 3 (d), below).

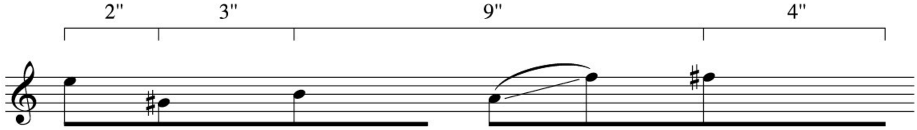
CONSTANT TIME-SPACE PROPORTION

Each time-span marked on a page should be in proportional length to its duration. The space needed to fit the densest notation into a time-unit determines this measurement (see *Spacing durations*, p. 630). In the case of evenly spaced markers (representing the same unit throughout), it is necessary only to label the first unit:

TABLE 3: Comparative examples of duration markers



If markers are required less frequently, label sections with individual durations, according to co-ordination requirements (see also *Signalled time-units*, p. 638):

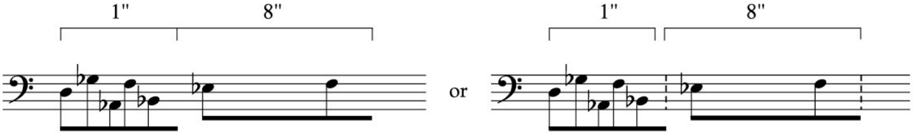


For players who co-ordinate in an ensemble piece, assign the same time-unit durations in each player's part.

If a consistent time–space proportion causes a significant portion of the music to be unnecessarily widely spaced, consider the following option.

VARIABLE TIME-SPACE PROPORTION

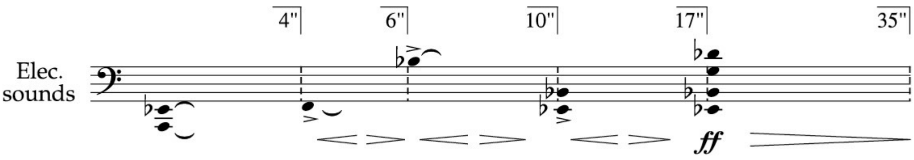
Select individual time-units according to the space each unit requires. Individual units need not relate proportionally to one another (but the spacing within individual units should remain proportional). This variable spacing allows notational density to be evened out on a page, potentially making the music easier to read, and may help to accommodate convenient page-turns:



CUMULATIVE TIMINGS

Cumulative timings often accompany graphic or proportional notation, particularly where the notation illustrates an electronic part for cueing or information purposes, rather than a set of instructions to be played (see examples under *Proportional spacing* and *Graphic illustration*, pp. 594–5). Distinguish cumulative timings by placing them at the end of each time-unit and framing them in a distinctive way (this differentiates them from an actual duration of a single time-unit).

While regular timings at equidistant intervals across the page are often most appropriate, timings at irregular intervals are more useful in circumstances such as to coincide with significant entries. Variable time-space proportion may be used (as described above):



(See *Timings for pre-recorded material*, p. 600.)

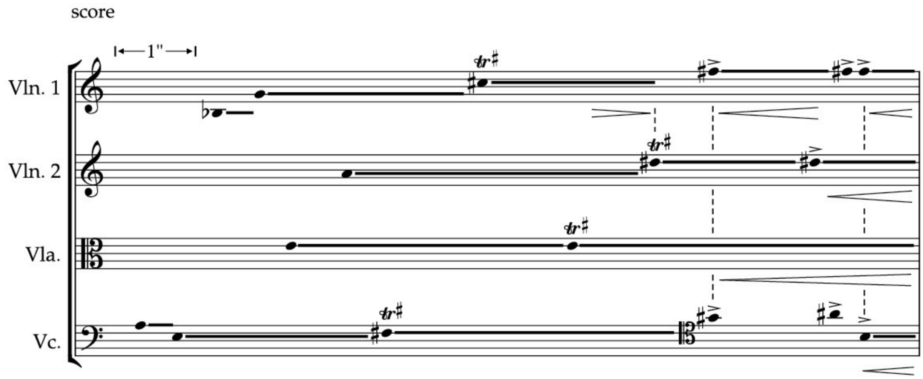
SIGNALLED TIME-UNITS

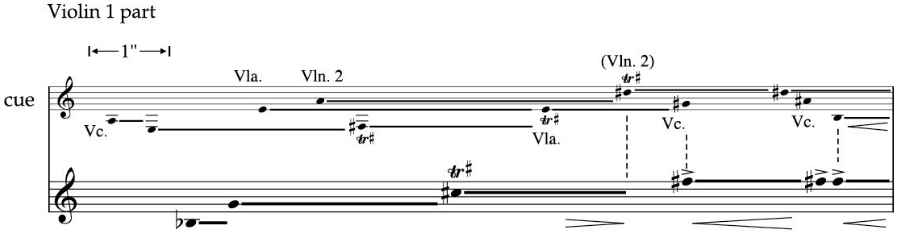
In both a score and instrumental parts, if it is important for performers to measure their lines against a conductor's beat, include all time-unit divisions that the conductor signals (use an appropriate style from those illustrated above). Use variable time-units if the conductor signals duration in this way. A performance instruction can state that all time-unit markers are signalled (if this is the case).

Cues in instrumental parts

Regular time-unit markers (or barlines) may provide sufficient co-ordination points by themselves, so that simultaneous cues of other parts or co-ordination signals are not required.

Where a piece indicates only the initial time-unit, this implies that duration is very flexible. Consequently, in an ensemble piece, synchronization is dependent on the musicians signalling one another. Provide a cue of the performer who leads, or cue a succession of leading entries, so that the player can follow the sequence. Notate only as much of the other lines as is necessary for co-ordination. (In the example below, the 1st violin part has all other entries cued, as each entry is dependent on the others.) Add a vertical line between the cue stave and the performer's line, if appropriate, to clarify where they should synchronize:





Arrows may clarify how performers signal each other (see *Performer signals*, p. 620). However, in the above example this would clutter the player's stave, since every entry signals another.

Where a work is highly dependent on players cueing one another, it might be the case that one cue stave cannot contain all lines necessary for co-ordination (e.g. if pitches of different cue lines overlap). Provided there are only a few performers, they may all use a playing score. This will enable them to see how their parts interact at all times (see *Playing score*, p. 538). However, in many cases a condensed version of selected cues on one cue stave (as above) is likely to be more helpful – i.e. less distracting – in performance.

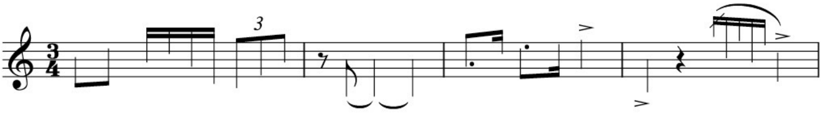
(See also *Cue stave*, p. 575.)

OPTIONS TO SHOW APPROXIMATE PITCH

On the stave

Stems without noteheads

The end of the stem where the notehead would normally be placed indicates the approximate position of a pitch. This style of notation is clearest where durations have tails or beams, since it is then obvious which end of the stem represents pitch:



Note that if stems are placed in a uniform position (as if only one pitch were used) this may encourage a monotone delivery (with reference to vocal music, see *Spoken text in rhythm*, p. 457).

The absence of noteheads may also be used to represent *ad libitum* pitch choices – a performance note can specify *free pitch/vary pitch at will*, and so on.

Crotchets, minims and semibreves are cumbersome to write: the end of the stem representing pitch can be identified only by the addition of a tie, duration dot or articulation mark; tied crotchet- or dotted-crotchet values are acceptable, but are not a particularly elegant solution. Therefore, where durations of longer than a quaver predominate, use crossed noteheads instead.

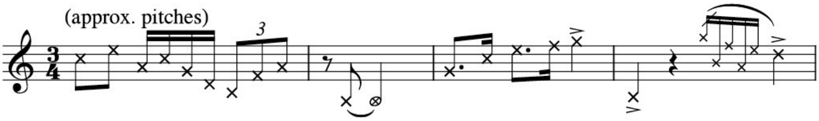
Crossed noteheads

Crossed noteheads have the versatility:

- when placed outside or without a stave, to represent various degrees of approximation: they can be placed with or without ledger lines
- to prescribe chords

- to express longer durations more readily than stems without noteheads
- to prescribe a pitch that should be aimed for but which may not necessarily be technically achievable

Because crossed noteheads always alert the performer to an unusual technique, it is essential to state whether they represent approximate pitch:



When noteheads are placed exclusively on the stave (not outside it), indicate whether or not the stave represents the entire range of the instrument or voice for these purposes (see next section).

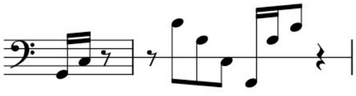
Crossed noteheads should have only one definition in a work. Use a contrasting notehead if another meaning, such as an unusual technique, is required (see also *Uses*, p. 11).

(For vocal music, see also *Spoken text in rhythm*, p. 457, and *Voiced and unvoiced sounds*, p. 458.)

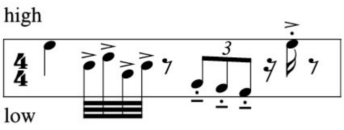
On a line or grid

Where pitch can be very free or approximate pitch is being described (e.g. in a cue of electronic sounds), replace the five-line stave with one or more lines. This has the practical advantage of enabling ordinary noteheads to be placed on, between or around lines – traditional note shapes are the easiest style to read. Provide a verbal definition of the register that a line or band represents. A single line might represent the middle of the performer's range (a). A band defined by two horizontal lines may represent the outer limits of an instrumental or vocal range (b), or of a particular register (c):

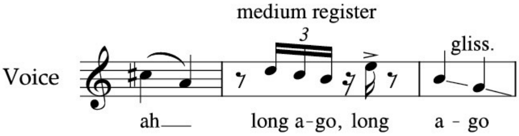
(a)



(b)

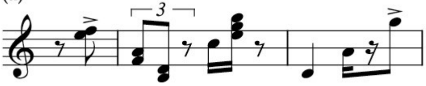


(c)

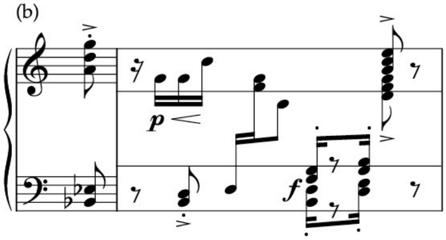


Lines may represent the middle of high, medium or low ranges (a); three bands may represent high, medium and low registers (b):

(a)



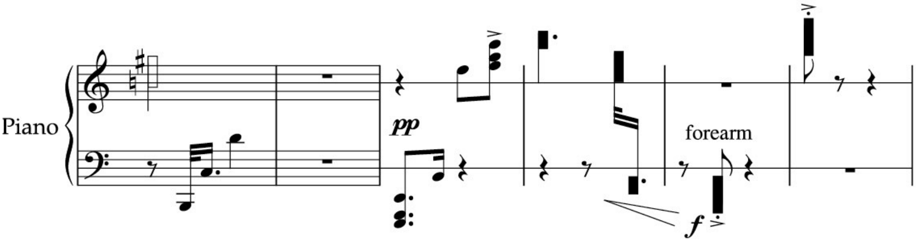
(b)



While extended passages benefit from this notation, it is better to preserve the five-line stave for the occasional approximate-pitch note, chord or figure, and to use stems without noteheads or crossed noteheads instead. This is to avoid potentially confusing changes of range: replacing the stave with one (or more) lines may imply a sudden shift in register. For instance, the middle stave-line of the treble stave redefined as an unspecified pitch in the middle of an instrumental or vocal range might require such a shift.

CHORDS AND CLUSTERS

A line or grid is efficient notation for approximate-pitch chords or clusters:



(See also *Note clusters*, p. 326.)

ALTERNATIVES (CHOICES)

This section deals with how best to present a choice or alternative ordering of any parameter of a piece (tempo, duration, pitch, dynamic, timbre, etc.) to a performer.

Performance conditions

Choices are appropriate where the composer wishes to involve the performer in the ordering of events or choices of material. They are suitable for situations in which the performers can easily make spontaneous or rehearsed decisions: pieces for solo performer or where generous rehearsal time is available. However, in ensemble music, consider rehearsal and performance conditions carefully before presenting a performer with choices.

Complicated choices or options that require elaborate independent co-ordination, e.g. a sequence of events to be determined by the musicians, may take too much rehearsal time to be practical. Time needed in rehearsal to fathom the meaning of options, or to discuss how they work, detracts from time spent rehearsing the actual music. If the sound of a piece is, on the whole, unlikely to be much different whether all its parameters are fixed (predetermined) or indeterminate (non-predetermined), then a work of entirely fixed order may be the most practical option. Some very experienced composers have rewritten earlier works, turning them from open into through-composed forms, to ensure that they can be rehearsed properly within a practical time frame.

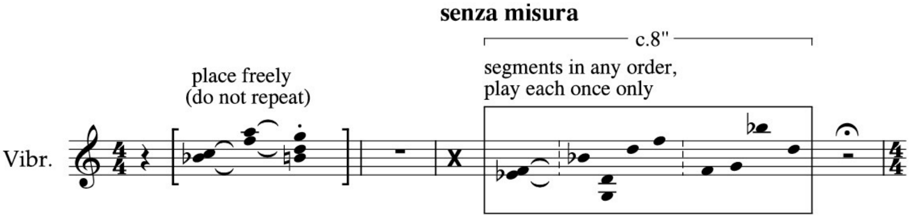
If options are given, include clear instructions and define the boundaries of choice, so that disproportionate rehearsal time is not spent discussing what is intended.

Note that there is a very real danger that a list or sequence giving alternative material, orders of events or of other parameters will be performed in its written order. A contributing factor is that trained musicians are often uncomfortable about making choices, and when under pressure to produce a professional rendition they may choose the safest option. A solution to discourage the performance of material in its written order is to arrange sections on the page so that they do not align horizontally or vertically. This scattered arrangement forces the performer to start in a random place – see, for instance, Stockhausen's *Klavierstück XI*.

Layout principles

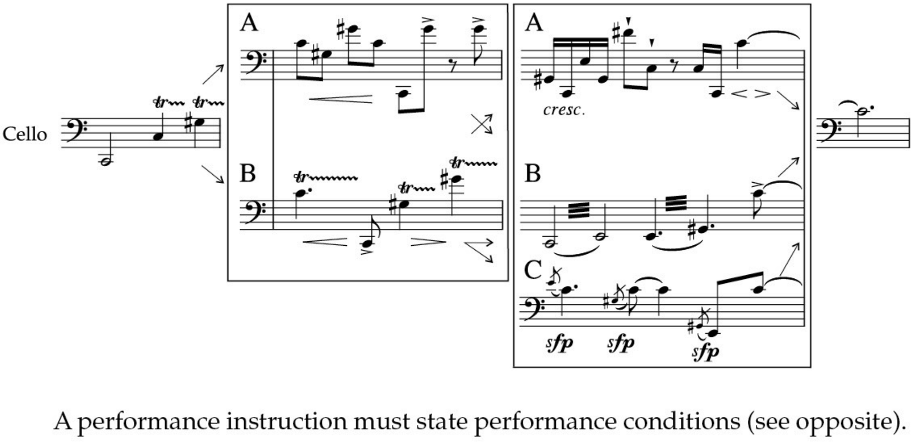
Enclose the choices or alternative orderings in a heavy frame or box to make them conspicuous and to separate them from other material. If a work requires frames for another purpose (e.g. to indicate placing material freely within a defined time-span – see p. 628), then use different styles of frame: one design should have only one meaning (compare the performance instructions below).

It is essential to give written qualification of performer choices. Where possible, locate instructions immediately above a frame:



Alternative material

To give one or two alternative routes through a passage, place the alternatives on adjacent staves, one above the other, so that it is equally straightforward to follow any route. (This also enables each option to have vertical alignment with other parts in a score.) Arrows may clarify possible routes through the alternatives. It is useful to frame the options, to remind the musician that he or she does not perform them all. Labelling the options also makes them quicker to identify:



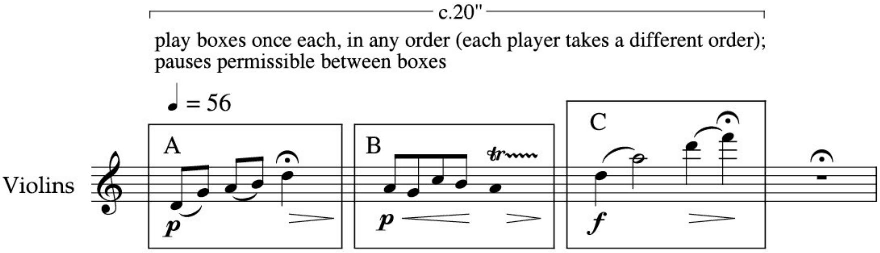
A performance instruction must state performance conditions (see opposite).

(For this style of layout, see also Birtwistle, *Verses for Ensembles*.)

Alternative sequences of events

Separate each event with an individual frame. The frames then visually distinguish material that may be performed in an order chosen by the musician, and facilitate jumping from one frame to another in any direction. Alternatively, use one long frame, adding dotted barlines to separate each segment – see vibraphone example, opposite (this option is unsatisfactory for any extended figures as the options are less clearly separated).

Label the frames or segments so that they can be referenced in a performance note that, for instance, states a permissible order. Labels are also useful so that individual performers reading the same line (e.g. more than one string player or singers of a choral line) can agree the same or an independent order amongst themselves, according to the performance instruction:


c.20"
play boxes once each, in any order (each player takes a different order); pauses permissible between boxes
♩ = 56
A
B
C
Violins
p
p
f
tr

According to space constraints, frames can be laid out sequentially (as above) – this would be the most conventional layout in a single-line part – or stacked on separate staves to save horizontal space in a score (see, for instance, Harvey's *Come, Holy Ghost*).

PERFORMANCE CONDITIONS

An explanatory note must indicate how to perform a sequence. The instructions may include the following:

- the sections are to be performed in any order *or* in one of a number of prescribed orders
- all the sections should be/need not be performed, *or* only a certain (restricted) number performed
- the sections should or should not be repeated
- a given section should start/finish the sequence
- each performer should start with the same section/with a different section
- an individual should perform the sequence independently of the others *or* synchronize with them
- the performer should move from one section to the next with/without a break

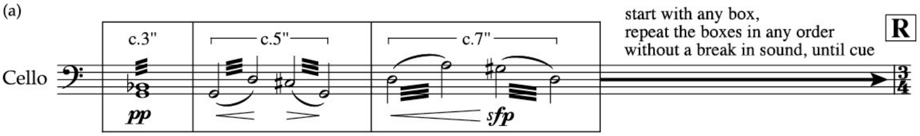
Give instructions as to how the performer moves on into a following section: whether at a signal he or she either stops immediately (or moves straight on to the following section), or finishes the section before moving on (or stopping).

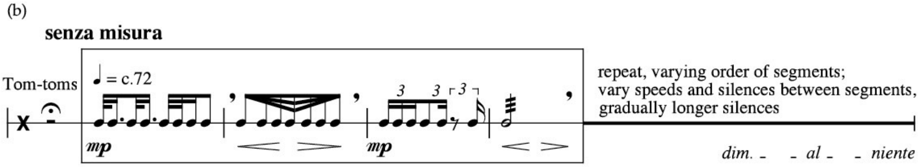
Tempi, duration and dynamics: if these are relevant to individual renditions of the material, place them inside the frame (see cello and tom-tom examples, below). If they are to apply to the whole passage, place them outside the frames (see clarinet example, opposite).

Repeating material of unspecified order

Where an order of frames or bars chosen by the performer (a non-predetermined sequence) is to be repeated, either join consecutive frames ((a) below) or place all material in a single frame, separating different segments with dividing lines or barlines (b). Both styles emphasize that the sequence to be repeated includes all the material (not just the last segment) – a performance note should clarify this.

Add a continuation line after the frame (see *Independent-repetition signs: Design*, p. 623). Using a frame rather than repeat barlines makes the material look different from independent repetition, and thus warns the performer that the sequence is to be other than a straight repeat:

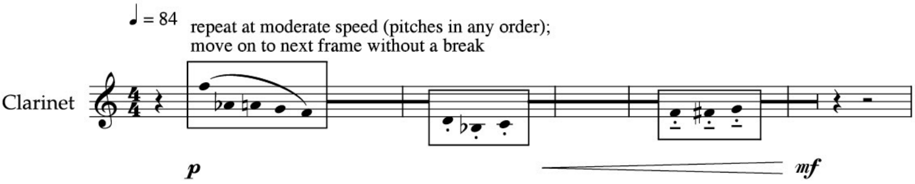

(a)
Cello
c.3"
c.5"
c.7"
pp
sfp
start with any box,
repeat the boxes in any order
without a break in sound, until cue
R
3
4


(b)
senza misura
Tom-toms
♩ = c.72
3
3
3
mp
mp
repeat, varying order of segments;
vary speeds and silences between segments,
gradually longer silences
dim. - - al - - niente

Options may be stacked if this is a more convenient layout – e.g. to facilitate skipping from one long passage to another, or between many options. In this instance, add a single frame or square bracket around all the stacked options (in the manner of the cello example, p. 644). Follow it with a continuation line (this style is used by Birtwistle in *Meridian*: cf. fig. 46, soprano parts).

It is clearest to read a non-predetermined order of pitches as a succession of single notes rather than a chord, especially for close intervals (see following example).

Where one sequence to be repeated follows on to another without a break in sound, join the continuation line to the following frame:


♩ = 84
repeat at moderate speed (pitches in any order);
move on to next frame without a break
Clarinet
p
mf

Free ordering of lengthy sections

SCORE LAYOUT

If the order of sizeable sections of material is not predetermined, it is impractical to show vertical alignment between different parts. Instead the score should become a record of the choices available for individual lines: a page of score is likely to contain groups of framed events grouped separately for each part (laid out in score order of instruments). In the score of Henze's String Quartet No. 4, the music of the fourth movement is set out as a four-page spread for each player in turn (only the opening and closing sections are pre-determined). A performance instruction explains how the movement should be shaped (the 1st violinist leads, choosing a framed passage, its character and dynamics at will, while the other players follow and echo in similar vein).

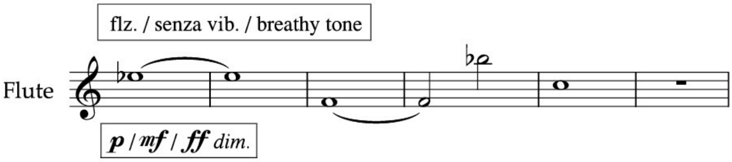
INSTRUMENTAL PARTS

Each player usually requires only the material of his or her own part and instructions (and cues if appropriate) for co-ordination as necessary.

Defining limits of choice

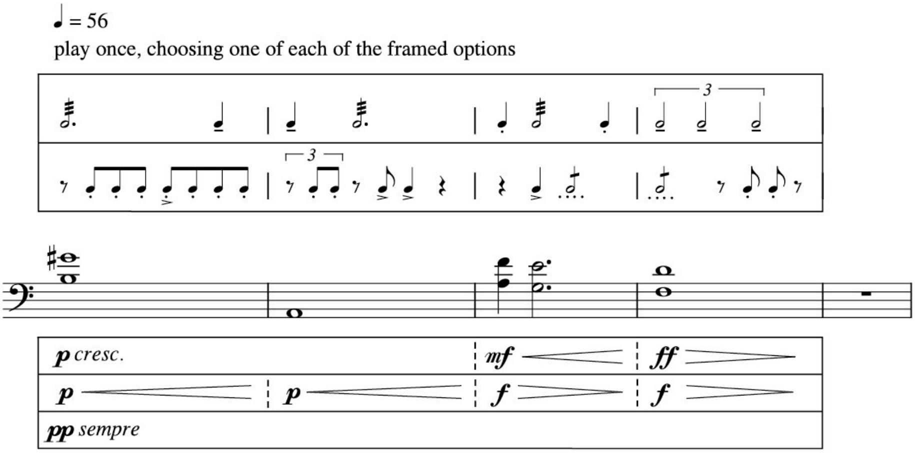
'Either/or' options

Separate straightforward 'either/or' options with a diagonal stroke inside a single frame:



(See also lower example (b), p. 648.)

'Either/or' options for a series of changing parameters should be stacked in parallel frames. Place these above or below the performer's stave according to the normal position of such performance indications. Place rhythm options above the stave together with those for tempo, duration and timbre:

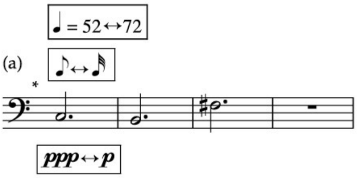


Outer limits of parameters

Define the limits of choice with a two-way arrow (see (a) below). Clarify in a performance note whether the performer chooses from the given options, or chooses an option from within the given parameter, or may fluctuate between the prescribed limits, and, if so, whether in a systematic or random way.

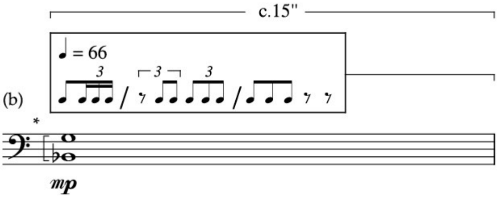
A vertical bracket or note cluster may indicate the extent of pitch options (b):

(a)



* Fluctuate freely between the given tempi, note-values and dynamics, with regular or irregular rhythms

(b)

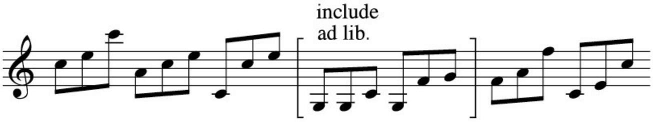


* Choose any pitch within given range, retain chosen note and repeat in one of the given rhythms

If material is to be repeated (e.g. as illustrated on p. 646), state how the options should be treated in the repetition, e.g. whether the repetition should use some or all of the given options.

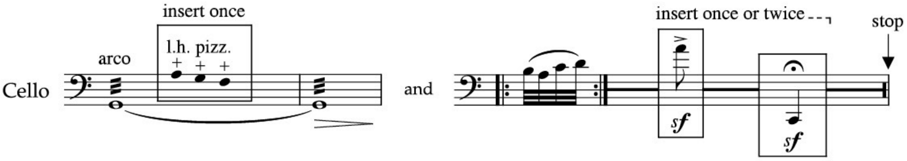
Optional additional material

Material that may be added to a pre-existing passage should be separated with square brackets. This facilitates omitting it. (In Boulez's Third Piano Sonata, optional additional material is also presented at a smaller size, to emphasize its optional nature.)


include
ad lib.

Inserts

Frame material that is to be inserted within a pre-determined passage. State the number of times it should be added. A horizontal line or bracket may indicate the time-span within which it is to be performed:


insert once
arco
l.h. pizz.
Cello
and
insert once or twice
stop
sf
sf

Where it would otherwise be confusing, place the insert on a separate stave, or as a footnote.

Appendix

Notes, Keys and Symbols: International Terms

	ENGLISH	ITALIAN	FRENCH	GERMAN
	C	do	ut/do	C
	D	re	ré	D
	E	mi	mi	E
	F	fa	fa	F
	G	sol	sol	G
	A	la	la	A
	B	si	si	H
	B♭			B
	major	maggiore	majeur	Dur
	minor	minore	mineur	Moll
♯	sharp	diesis	dièse	Kreuz: suffix -is*
♭	flat	bemolle	bémol	Be: suffix -es*
𝄪	double-sharp	doppio diesis	double-dièse	Doppel-Kreuz: suffix -isis*
𝄫	double-flat	doppio bemolle	double-bémol	Doppel-Be: suffix -eses*
♮	natural	bequadro	bécarre	Auflösungszeichen
‖𝅝‖ or |𝅝| or 𝅜	breve *double whole-note*[§]	breve	carrée/brève/ double-ronde	Brevis
𝅝	semibreve *whole-note*[§]	semibreve	ronde	ganze Note

𝅗𝅥	minim *half-note*[§]	minima / bianca	blanche	halbe Note
♩	crotchet *quarter-note*[§]	semiminima / nera	noire	Viertelnote
♪	quaver *eighth-note*[§]	croma	croche	Achtelnote
𝅘𝅥𝅯	semiquaver *sixteenth-note*[§]	semicroma	double-croche	Sechzehntelnote
𝅘𝅥𝅰	demisemiquaver *thirty-second note*[§]	biscroma	triple-croche	Zweiunddreißigstelnote
𝅘𝅥𝅱	hemidemisemiquaver *sixty-fourth note*[§]	semibiscroma	quadruple-croche	Vierundsechzigstelnote

[§] *American usage is shown in italic type.*

[*] Small irregularities exist in the German; keys are set out in full below.

♯	♭	𝄪	𝄫
Cis	Ces	Cisis	Ceses
Dis	Des	Disis	Deses
Eis	Es	Eisis	Eses
Fis	Fes	Fisis	Feses
Gis	Ges	Gisis	Geses
Ais	As	Aisis	Asas
His	B	Hisis	Heses

Further Reading

Below is a highly selective list of further reading. For a comprehensive bibliography of works on notation, see *The New Grove Dictionary of Music and Musicians*, article on *Notation*, vol. 13. Books on individual instruments are referenced in the text, where relevant. The *New Instrumental Series* (California University Press) includes useful books on the contemporary flute, clarinet, trombone, harp, guitar and double bass. Several titles are out of print but may be found in libraries or online.

Music engraving and notation

Cole, Hugo, *Sounds and Signs: Aspects of Musical Notation* (Oxford University Press, 1974)
Gerou, Tom, and Linda Lusk, *Essential Dictionary of Music Notation* (Alfred Publishing Company, 1996)
Homewood, Susan, and Colin Matthews, *The Essentials of Music Copying* (Music Publishers' Association, 1990)
Rastall, Richard, *The Notation of Western Music: An Introduction* (Travis & Emery, 2nd rev. edn, 2008)
Ross, Ted, *The Art of Music Engraving and Processing* (Hansen Books, 3rd edn, 1987)
Sadie, Stanley, and John Tyrrell (eds), *The New Grove Dictionary of Music and Musicians*, 29 vols (Oxford University Press, 2nd edn, 2001) particularly articles on *Aleatory* and *Notation*
Stone, Kurt, *Music Notation in the Twentieth Century: A Practical Guidebook* (W. W. Norton, 1980)

Orchestration

Adler, Samuel, *The Study of Orchestration* (W. W. Norton, 3rd edn, 2002)
Blatter, Alfred, *Instrumentation and Orchestration* (Wadsworth, 2nd rev. edn, 1997)
Del Mar, Norman, *Anatomy of the Orchestra* (Faber and Faber, 1981, re-issued 2009)
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